Textile World

ESTABLISHED 1868

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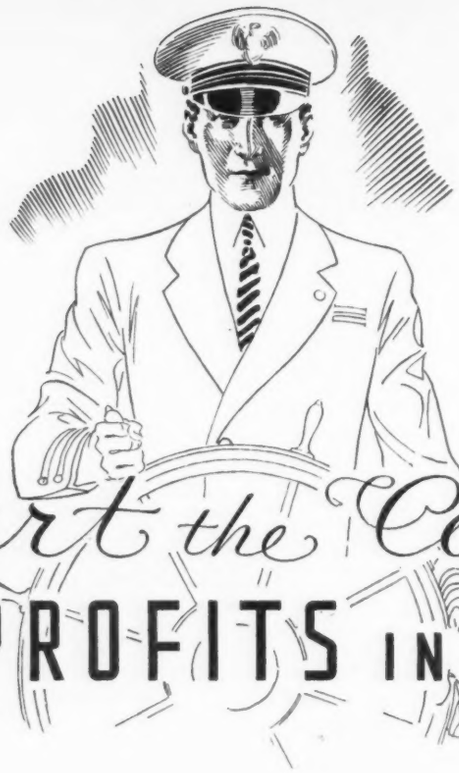
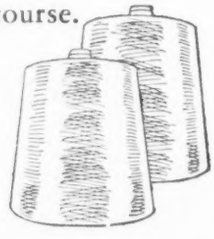


Chart the Course TO PROFITS IN 1933

BUSINESS SHIPS that sail the commercial seas will require most skillful piloting this year—to follow the course to *profitable* sales, ignoring the siren call of volume-at-any-price. ◆ ◆ "Skippers" are most carefully scrutinizing their *sources of supply.* They realize the great importance of these in offering their trade consistently high quality, in giving value, in maintaining the service that holds old customers and gains new ones. ◆ ◆ INDUSTRIAL supplies products of uniformly high excellence to mills which stress *quality* rather than price alone. With these products goes a policy of utmost cooperation and assistance in their use through technical service and in their distribution through effective, "custom-built" trade promotion. ◆ ◆ Possibly INDUSTRIAL can help you, too, chart your course.



INDUSTRIAL RAYON CORPORATION

General Offices: 9801 Walford Avenue, Cleveland, Ohio

Plants: Cleveland, Ohio; Covington, Virginia

Manufacturers of

Premier Rayon and SPUN-LO

Yarns and Knitted Fabrics

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Editor: DOUGLAS G. WOOLF

For Their Noise, Let Us Thank Them

ALMOST over night, technological unemployment has become a by-word. However, it is traveling under another name—a smarter even if less descriptive term. As "technocracy," it has become the concern of the masses as well as the classes. It is the new toy of women's clubs, social circles, public forums, and even elementary schools.

Technological unemployment has never meant much to the man in the street. It may have put him in the street, but the victim failed to recognize his enemy. But "technocracy" is something else again. It has caught on. Which, after all, is a tribute to the power of publicity—and of a good publicist.

▼

The "technocrats" have sounded warning that it is only a matter of months before our beautiful industrial structure is going to smash; that the so-called "price system" is doomed; and, inferentially, that we shall have to accept the dictatorship of the technicians—and like it.

Well, what are we going to do about it?

We might of course, "pooh-pooh" the whole idea. We might ask the "technocrats" why it is necessary to talk about "energy conversion" and "supreme staticism" and "classic economic postulates" when they are dealing with such a simple matter as the replacement of men by machines. We might examine some of the specific instances they cite—such as the rayon plant in New Jersey which produces yarn untouched by human hands—and ask them how they get that way. We might even be unkind enough—as some observers have been—and inquire into the qualifications of some of the "technocrats."

We might conclude that this particular group, as scientists, are good publicists; that their technique consists in making simple matters complicated; that they completely ignore the human factor; that they can get away with generalities but run into trouble when they take up specific examples; that they made their supreme mistake when they "dated" the collapse for 1934.

▼

But what good would that do us? We would still have technological unemployment—as a national and a world problem.

So why not take the benefits of "technocracy"? Why not be thankful for the agility with which this group, in a few months, has made people think about technological unemployment?

No thinking man, whether he be employer, employee, or unemployed, can close his mind to the implications of the depression which is now receding into the background, or of the depression which will be with us again in the course of years unless we do something about it.

And "doing something about it" means, first, thinking about it—projecting ourselves into the future of our machine civilization and planning to direct it into channels of usefulness and human happiness.

In this planning, we may find that we can get along without the "technocrats." But, apparently, in arousing men and women to the need for planning, we can't get along without some such noise as "technocratic" publicity.

So, for their noise, let us thank them—and encourage them not to stop until every man, woman and child begins to think. And think about what? About the fact that we have a world geared to a new order of things; that we are still masters of our destinies; and that we can control—in fact, must control—the social effects of the machines we have brought into being.

The Editor Says:

AS WE shopped in our town one day recently, we noted a printed sign: "It was a tough depression, wasn't it?" We rather liked the past tense. As we start the year, we see nothing to upset our belief that the depression, in its most malignant and progressive stages, is over; that we have been scraping bottom for several months; and that the future trend is bound to be upward, although the movement will be slow. . . . Pointing out that it takes from a year to a year and a half to travel from the bottom of a depression to the normal line, Col. Benjamin A. Franklin, former president of the Associated Industries of Massachusetts, concludes that "this means that at the best, unless the conditions of this depression are quite different from past ones, we'll be headed slowly upward in 1933 to a normal in 1934, and a peak some time after that." It seems difficult to argue with this estimate, and impossible to argue with Col. Franklin's advice: "There is only one answer for the sound business man. Balance your budget. Get down to hard pan. Tighten your belt. Then get your products in line with popular demand, and fight upward."

❖

IN A statement made last month by R. B. King, president of the Durene Association, we find an excellent thought for the New Year. In abstract form, here it is: The individual steps most vital in the textile industry include, first of all, unified acceptance of the obvious fact that conditions are both better and saner. To persist in withholding optimistic judgment is to withdraw from judging at all. We must take advantage as an industry—and all industries must—of the upturn in national psychology and the underlying satisfactory facts upon which the better view of business is to be based. We must, as individual firms making up each individual group, discard the antiquated viewpoint that capacity production necessarily means business at a profit. . . . A truism which demands repetition is that merchandise is not sold until it is sold to the ultimate consumer. Persistent ignoring of this fact was one of the big mistakes made during the inflated years following 1921. . . . If as an industrial country we are wise, the surface prosperity of 1927 will never again be with us. In its place we shall have a less dramatic, but infinitely sounder, bedrock of supply created for an existing and scientifically estimated consuming market. We shall have balance instead of fake enthusiasm.

❖

TEXTILE manufacturers may resent, as intrusive, the announcement of Miss Lucy Randolph Mason, general secretary of the National Consumers League, that she intended to visit the southern States early in the year as the League had "decided to make an immediate drive for limitation of hours and night-work for women in the industry through State action." However, there is another side to this question. When the cotton industry took the initiative itself and adopted constructive policies for limitation of the maximum work-week, and for elimination of night employment of women and minors, the League applauded this action—just as did the public at large. The threatened breakdown of the "women and minors" policy, and the only partial salvage of it effected, focussed attention upon the industry, and brought criticism where before there was praise. Offensive, rather than defensive, tactics are always advisable where questions of public policy are involved. The surest way for an industry to avert "intrusion" is to put its own house in order—and to *keep it in order*. If the "women and minors" policy does not regain the adherence of a majority of the industry in all its groups, manufacturers may expect campaigns from the outside.

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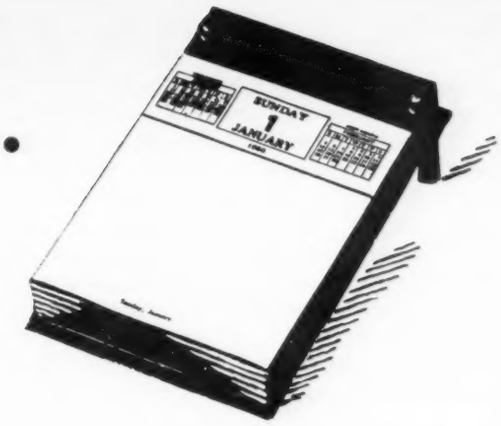
ANYONE to whom the vagaries of fashion are as inscrutable as they are to us, will gasp at Dr. Paul H. Nystrom's suggestion that we need a scientific understanding of the nature of fashion, how it works, and how to work with it. The smart answer, of course, would be that science and fashion are incompatible; that fashion defies analysis. But that is really not an answer at all; it is an evasion. . . . We know that Dr. Nystrom appreciated the complexities of the problem when he offered, merely "tentatively," three examples of the applications of a better understanding of the nature of fashion, and when he pointed out that our general knowledge of the subject is still in its primer stage. But we are also sure that he did not consider the job an impossible one when he expressed the hope that the Fashion Group, which he was addressing, might devote an occasional meeting to a discussion of the nature of fashion and how it works. Certainly, that group could serve as an excellent clinic for this purpose. . . . Gradually, all our emotions, from the cradle to the grave, are being subjected to analysis. It is reasonable to suppose that fashion can escape?

❖

SOMEHOW or other, we can't get steamed up over the "Buy American" movement. Even the highly paid words of Sam Blythe and Will Rogers leave us cold. . . . Possibly we should make our position clear, or we shall be accused of possessing only $99\frac{44}{100}\%$ of Americanism. We are confident, first, that we can satisfy practically all our wants with American products of at least as good quality and value as those brought in from abroad; and, second, that the obvious impulse we should all have is to contribute, to the maximum, to the relief of unemployment in this country. . . . But we stop there—and the barrier is a sense of futility in any campaign which tries to tell people where to buy. We are not considering, here, the broader aspects of the flow of international trade, although we were tremendously impressed with the article on that phase entitled "'Buy American!'—With What?" written by Peter Molyneaux in the *Texas Weekly*. Rather, we are interested in the psychology of the shopper in front of a counter. When the customer gets to the moment of purchase, he or she forgets all about patriotic appeals, all about the plight of the southern cotton farmer, all about the conditions among miners in Pennsylvania. He or she considers only what he or she wants, plus what the salesman may or may not tell him or her. . . . Certainly, the "Buy American" movement can do no harm, but we are also afraid it can do no good. And, as an editor, we really think that the rate-per-word paid Sam and Will should be expected to produce results.

1933 Prospects . .



SEVERAL WISE MEN AND ONE RASH EDITOR LOOK AHEAD

THE depression has almost doomed the old American custom of making New Year predictions. Each year, people in general—and textile manufacturers in particular—become more cagey. The old stereotyped line about "approaching the New Year with confidence and optimism," once regarded as innocuous, now looms up as a daring and unwise leap into the dark.

When we went gunning for prophecies this year, we bagged from one man what we believe is an all-time record for a safety-first forecast. He said: "I believe you will see, during 1933, some developments in connection with the depression."

But occasionally a hunter gets shot. We were caught at our own game. A fellow editor, whose publication serves a field which sells to the textile industry, caught us in one of our weaker moments and extracted from us a promise to write an article on the textile outlook for 1933. Having gone thus far, we went the whole route. Here are our exact words: "If I were selling to the textile industry, and wanted to budget sales for 1933, I would base my estimates upon an expectation of approximately 7½% increase in textile mill activity over 1932. Moreover, I would feel that I was taking the conservative side—and would be prepared for the pleasant surprise of, say, a 10% increase." We explained that this prediction was not merely a "hunch," nor on the other hand the result of a straight statistical calculation—but that it was rather the product of a "picture-puzzle" method, being based upon a study of the industry's performance over a period of years, a knowledge of current trends in textile markets, and an estimate of the course of general business in 1933.

And, having thus committed ourselves in one publication, we shall have to stand on this forecast.

In any event, although this question of volume is of paramount importance to firms which sell to the textile industry, it is of only incidental significance to textile manufacturers themselves. What they want to know is whether or not they will make a profit. The answer to that question, we believe, will be found in the following statements made by a few of the leaders in the industry. If the advice offered in these statements is followed by a majority of the mill executives, 1933 will be a profitable year.

▶ **George A. Sloan, president, the Cotton-Textile Institute:**

"There are many factors such as price advance in raw material or better conditions in business generally which contribute to improvement in our primary market. But one of the greatest influences for betterment within the control of the mills themselves is low inventory. Following a two-year steady decline in stocks of medium and fine cotton goods, the third quarter of 1932 witnessed a sharp upturn in demand with improved manufacturing margins. It is very doubtful if there would have been such a pronounced exhibit of buyer confidence without the knowledge that stocks were low. Year-end sentiment favors low inventory based on carefully planned production. This offers one of our best hopes for 1933."

▶ **Rufus W. Scott, chairman of executive committee, Tubize Chatillon Corp.:**

"He is indeed a daring prophet who would forecast business trends for 1933. In rayon, however, I look for very large consumption on account of its steadily increasing acceptance by consumers and its favorable price position in comparison with other fibers. The industry is thoroughly deflated and 'debunked,' and I believe any price fluctuations will probably follow the trend of other basic commodities and be within relatively narrow ranges."

▶ **Lionel J. Noah, president, American Woolen Co.:**

"Predictions for the woolen and worsted industry for 1933 are difficult to make at this time as this industry, like all others, is dependent on general business conditions as they develop and particularly on the purchasing power of the consuming public. There are no accumulated stocks of wool or finished materials to be liquidated so, should conditions take a turn for the better, the industry should profit from such improvement."

▶ **Paolino Gerli, president, Silk Association of America:**

"The silk industry is slowly regaining confidence. It finds less reason for discouragement today than during the last three years. Reduction in raw silk stocks in Japan and limitation of new crops have injected greater stability into the raw material market. Manufacturers' stocks are lower than last year and production schedules are on a more conservative basis. Ingenuity applied to the development of new weaves and to the styling of silks should stimulate demand. Consequently, despite the uncertainty which still exists regarding a few external factors, the prospects are for a profitable spring business. If manufacturers continue to adjust their management and merchandising policies to the needs of the times, the industry should be in a sound position to share in the improvement which seems to be ahead."

▶ **B. B. Gossett, president, American Cotton Manufacturers Association:**

"What 1933 holds for the textile industry is largely up to the industry itself. We are entering the new year on a more favorable basis than that on which we

started the year 1932. Therefore, if manufacturers will continue their cooperative efforts and keep their production within reasonable bounds in relation to current and prospective demand, I can see no reason why 1933 should not be fairly profitable for all well-managed mills. Toward this end, one thought demands particular emphasis. In the summer of each year, there is a perfectly normal and predictable abatement of demand for cotton goods. Instead of accepting this seasonal variation as normal, and sitting tight until demand picks up again, sellers become panicky and try to force the market by price reductions. If manufacturers will take such swings into consideration in advance, and adjust their operations and sales policies accordingly, they will avert the inexcusable price collapse which has ruined profit possibilities so often in the past."

▶ **Ernest N. Hood, president, National Association of Cotton Manufacturers:**

"The cotton industry while it operated approximately 77% during 1932 as compared with 86.4% (figures on a single shift basis) in 1931 did not suffer as severely as many of the industries in the United States. The merchandising situation could be tremendously improved by a stabilizing of the raw material market and by the adoption of a non-interference policy on the part of the Government. Despite the unfavorable conditions which surround us there are some encouraging signs on the horizon. It is generally agreed that there is a slightly better outlook so far as general business is concerned. Indications are that the number of active spindles, which is now 25,000,000 against 35,500,000 in 1923, will not exceed 29,000,000 when normal business returns and if this proves true the industry will then be operating about the same number of spindles as in 1910. There is also a greater tendency on the part of various groups in the industry to cooperate."

▶ **Earl Constantine, managing director, National Association of Hosiery and Underwear Manufacturers:**

"One cannot consider the likelihoods of 1933 without examining the facts of 1932. Last year was not an improvement over the previous year. Shrinkage in volume was small, but shrinkage in unit value was marked. Commodity levels were lower and showed strength during one short period only. Managements were concerned primarily with providing employment; consequently it is not surprising that mills have yielded considerably under the pressure of buyers for lower prices. This condition has compelled wage reductions to a point below what is socially desirable. Buyers should realize that there is a limit below which prices cannot move without financial danger to mills, social danger to labor, and quality danger to the product. . . . Against the losses of 1932, we should stack up the gains. Credits are being scrutinized more carefully; mill operation is more effective; waste is negligible. Best of all, the industry has shown appreciation of the need for cooperative action. . . . As regards 1933, the hosiery industry will, of course, be primarily affected by general conditions. With many broad issues still unsolved, we should be prepared not to expect much substantial improvement. During the coming year, increased need for co-ordinated effort will impose upon trade associations a special responsibility and test. A practical-minded and serviceable trade association is invaluable today to any industry, and constitutes the best form of insurance possible."

Allotment

FOR FARM OPPOSITION

NO LEGISLATION proposed in years has aroused such wide-spread opposition among cotton manufacturers as has the so-called domestic allotment plan of farm relief. As indications pointed more and more to the possibility—in fact, probability—of enactment of such a measure, leaders in the industry served warning of the disastrous effect it would have upon mills and mill-workers.

However, the opposition has not been based upon this contention alone. The relief plan, calling for the levying of an excise tax upon those quantities of certain commodities used for domestic consumption the revenue to be returned to the farmers in return for pledges to reduce acreage, has been declared impossible of enforcement and administration. Furthermore, it has been pointed out that, even if it could be enforced, it would not provide the relief to agriculture which its proponents promise. Consequently, it would not only fail of its purpose but would cripple a major industry in the process of its failure.

The domestic allotment plan reached the House Jan. 3 in the form of a bill titled the "National Emergency Agricultural Act" but known popularly as the Jones "parity plan" bill. It was favorably reported by the Agriculture Committee of which Representative Jones of Texas is chairman. In essence, it follows the lines previously indicated. Covering four commodities—wheat, cotton, tobacco, hogs—with the understanding that a fifth, rice, will be added, it provides for a "fair exchange allowance" on each of these commodities. This allowance, roughly, represents the difference between current market prices and the average in the pre-war period 1909-14. A producer of any of the commodities is entitled to "adjustment certificate covering the domestic consumption percentage of the commodity of his own production marketed by him," the face value to equal the amount of "fair exchange allowance" due on the quantity of the particular product he markets less pro rata share of administrative expenses. To get the certificate he must prove he has reduced his acreage by 20%. The funds are raised by an adjustment charge on "the first domestic processing of any wheat, cotton, tobacco or hogs, whether of domestic production or imported, to be paid by the processor." Exportation of products on which an adjustment charge has been paid would entitle the exporter to a refund of that charge.

Of particular interest to the textile industry is the fact that an adjustment charge is placed on silk and rayon, equal to that on cotton; also that the bill provides a duty of 5c. a lb. on short staple cotton and on jute. Imports of manufactures of any of the four commodities, covered by the bill, will be subject to a duty equal to the amount of the respective adjustment charge.

As this issue went to press, no information was available regarding the probable time which would elapse be-

Plan

RELIEF AROUSES FROM MANUFACTURERS

fore the bill would reach a vote in the House. It also seemed probable that opposition to the bill would take centralized form in an organization to fight against the plan.

A particularly convincing and comprehensive statement covering the objections to the proposal was that made by Charles A. Cannon, president of Cannon Mills, Inc., before the House Committee on Agriculture, in Washington. Mr. Cannon said, in part:

"If the farm population can be helped and employees of various industries not thrown out of work, I am sure the textile industry would welcome any law that might be enacted to accomplish that result.

"Cotton is our most important export commodity. We manufacture in this country about 40% and export about 60% of our production. I believe we employ more than 400,000 operatives in the cotton mills of this country. The railroads of this country serving the cotton-producing area and the railroads serving the manufacturing area have a great stake in the domestic consumption as it materially affects their revenues. If the tax of 5c. per lb. is assessed will it help the farmer? Will production of cotton be reduced, as has been suggested by signed agreements, etc.? I think the answer to both questions will be no.

"The farmers would not receive 5c. per lb. less expense, but 40% of 5c. per lb. on his total production, or 2c. per lb. less expenses on his entire production. The American consumer would pay the full tax, which would be more than 5c. on account of the waste, including bagging and ties and all foreign substance in cotton, which are now paid for at the same price. Or, expressing it differently, a 500-lb. bale of cotton with a tax of $25 would produce 400 lb. of cotton goods. This would mean a tax of 6¼c. per lb. to the cotton goods buyer. Many goods today are being sold at from 15c. to 18c. per lb. This is a sales tax of 33⅓ to 40%. Can there be any doubt that an increase of this kind would reduce the quantity of goods used? If consumption is reduced—if instead of 40% being used by American mills for American consumption the percentage should drop to 30%—the cotton producer would drop to 1½c. bounty less expenses, while the American consumer would continue to pay 6¼c. per lb.

"It has been suggested that 60% of the producers of cotton could request that the plan become operative upon agreeing to reduce acreage (in one plan the reduction of acreage was not to be more than 10% in any one year). I would call attention to the fact that cotton acreage was reduced between 9 and 10% last year, and it is estimated the present crop has been reduced about 9%. In spite of this fact we have the biggest carryover we have ever had.

"Is it unreasonable to assume that the producer will keep his best land under cultivation, that increased fertilizer will be used on the reduced acreage, that a smaller acreage will be more intensively cultivated? If it is not, then it seems reasonable to expect a larger production per acre and therefore a smaller reduction than would be needed.

"If the amount of cotton to be exported is increased by less consumption in the United States or by new production, it seems to me that the world price would be lowered and in the end our producer might receive much less than he is now getting for his total crop.

"Every bale of cotton consumed in American mills gives employment, purchasing power, to textile operatives, increased railroad revenue and employment not only on the cotton, but on all supplies for the mills and their employees. Every bale of cotton shipped abroad that could be manufactured here would reduce employment in the United States, creating less buying power and less demand for all supplies. No mill could afford to carry goods in stock and risk being subjected to a change in tax. No buyer of gods would buy for future delivery with great uncertainty as to cost."

WHEN we first heard the details of the domestic allotment plan of farm relief, we did not take it too seriously. We were confident it would be laughed to death. Evidently, we under-estimated the spirit of desperation among legislators and would-be economists. It seems that no straw is so fine as to be devoid of grasp-appeal for these drowning men. . . . The plan, insofar as it affects the cotton industry, would yield an excise tax of 5c. per lb. on all cotton manufactured by mills for domestic consumption; the tax would be paid by the mills and the revenue thus derived would be distributed among farmers in return for an agreement to curtail their cotton acreage. . . . Not only is the plan taken seriously but Washington observers predict that it is certain of enactment—if not by the short session, at least by the special session which, all agree, will be called after inauguration. We very much doubt that there is a chance of such action before March 4—but now is the time to guard against its accomplishment next spring. Manufacturers should take every opportunity to make their interests in this matter vocal.

Naturally, we are opposed to the domestic allotment plan because of its potentially disastrous effect upon an important branch of the industry we represent. We are confident that its enactment into law would cripple one of the few industries which have been supplying a near-normal degree of employment, and consequently livelihood, to workers. We know that the resulting increase in cost, per garment, to the ultimate consumer would be comparatively slight, but we also know the restrictive effect of inflated prices upon consumption. Moreover, we are sure that the plan would invite foreign competition on a scale hitherto unheard of, and that the only defense would be the construction of higher tariff walls and the start of another vicious circle. . . . However, quite apart from our interest in cotton manufacture we consider the plan an economic monstrosity. It is unsound in its principle, unworkable in its detail, unfair in its discriminatory features. It would result in bootlegging and tax evasion. It would require vast policing and punitive agencies, particularly in connection with acreage curtailment—and there would be no chance for those agencies to be at all effective. . . . History provides eloquent evidence of the folly of governmental attempts to inflate, artifically, the price levels of commodities. Must we be scared into writing another futile chapter?—*Editor.*

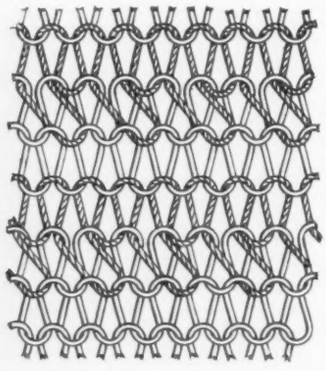
Non-Run Hosiery

OFFERS INDUSTRY BIG TRADE-UP OPPORTUNITY

A STUDY of the hosiery industry's outlook for 1933 strongly indicates that the non-run full-fashioned stocking will be a significant factor in the year now opening. This radically different hosiery, introduced only three months ago, has been enthusiastically welcomed by distributors and consumers alike, and sales have been limited only by the capacity of the mills themselves. Now, however, as the hysteria which followed non-run's first appearance wanes, it is clear that, for sound and profitable merchandising, this new type of full-fashioned stocking must be taken out of the bonanza class, and sold on a carefully calculated basis.

Such was not the situation during the first three months of non-run promotion. In that period, enthusiasm ran wild, bringing with it all manner of overclaims, due mainly to lack of accurate knowledge of the stocking itself. Then came competition of low-priced lines, and confusion among distributing groups. The bewilderment among sellers was traceable chiefly to indiscriminate use of the term "non-run" and its derivatives. Now, when we attempt to evaluate non-run's significance and progress to date, one though stands out predominately—that is the need for a new promotional program which will more adequately fit the new product.

But let us first examine the present picture. As January opens sales interests is centered on two outstanding non-run full-fashioned types: the stocking made under the Schwartz patent which is manufactured by several firms under the leadership of Berkshire Knitting Mills; and the stocking made under the Graenz patent which is manufactured by the Gotham Silk Hosiery Co., and sold under the trade name "Gothamettes." These types led the field in the spirited movement of non-run hosiery which marked the concluding months of 1932. The year-end brought its normal slackening, but indications point to a good pick-up this month.



Fabric made according to Graenz patent.

At left—Non-run hosiery by Gotham using Graenz patent construction.

At present, most of the non-run full-fashioned demand is for two- and three-thread; patterns are restricted to one design for each patented type of stitch. There is plenty of variability in colors; all the high-light winter shades, totalling half-a-dozen, move actively, and spring shades have begun to appear. Prices are firm, the chief call being for lines retailing at $1.35.

Viewed broadly, the non-run picture presents three aspects: first, production; second, merchandising approach; and third, consumer response.

Mills Heavily Oversold

From the production angle, the chief problem has been: To accelerate output to meet the rapidly increasing demand, and to cut initial costs. Mills reported a heavily oversold condition throughout November and December. Berskshire Knitting Mills increased production steadily each month, yet as the year ended this company still was considerably below capacity production.

The second and third aspects—merchandising and the consumer—are so closely interlinked that they can best be treated as a unit. Here we face the most difficult, though at the same time the most encouraging, aspects of non-run development. There are excellent prospects for good profits in non-runs this year, but several serious problems still await solution.

The stocking has not been long enough on the market to permit development of anything more than an improvised sales program, and promotion therefore has followed rather than guided demand. The selling effort on non-runs has been led by consumer response into three main channels as follows: (a) the promotion of 4-thread for street wear; (b) three-thread for street and sportswear; and (c) two-thread for evening wear. All of these were active, some sold hectically, during the concluding quarter of 1932; distributors promoted the line with enthusiastic claims, some of which were more poetic than accurate.

Now, however, with non-runs past the preliminary stage, it is essential that the market situation, both present and future, be analyzed to provide basis for planning. Reports from jobbers and retailers show definite trends and these are valuable as indicating non-run prospects during 1933.

What is the best market for non-runs? How should they be sold—as a novelty, or as a staple? These are only a few of the vital questions pressing for early answer. Distributor opinion, based on three months' selling, throws some light on the picture. There is still a conflict of views among buyers as to whether non-run is a novelty or a staple. An increasing number of retailers regard it as a new staple line, but there remains

a considerable group which insists the stockings should be sold as a mesh, and it is not likely this latter viewpoint will be discarded in the season now opening. Indeed, some manufacturers and distributors believe the similarity between non-runs and mesh to be so pronounced that they look for the non-run popularity to possibly precipitate a revival of interest in the whole mesh range.

Economy the Selling Point

Current sales trends would indicate that consumers themselves regard the new hosiery somewhat as a mesh. Reports to manufacturers show that demand at present is based on two of the most popular mesh hosiery uses —sportswear and formal evening wear. It also must be kept in mind, however, that one of the chief aims of women in buying non-runs has been to save money. Opinion expressed by retailers and based on consumer contact, confirms this. Therefore, future promotion for this year should be based on the premise that economy is a dominant sales appeal for non-runs.

Apprehension among full-fashioned manufacturers as regards the possible effect of non-runs upon staples generally, appears to be without any real foundation. Knitters who offer both staples and non-runs have been watching their sales records for enlightenment on this point, and they find no let-up in staple sales which could be attributed to the advent of non-runs. On the contrary, these manufacturers report: first, that an important part of their consuming public will always hold to staples; and, second, that there is a growing tendency to buy both types.

All of which brings us back to our original point—the need for a reorganization of the non-run manufacturer's merchandising program to cover all the new and vital issues raised by this stocking. Education by mills will do much to clear up the whole situation, both as regards guiding consumer opinion on the usages of non-runs and helping distributors to promote the line intelligently.

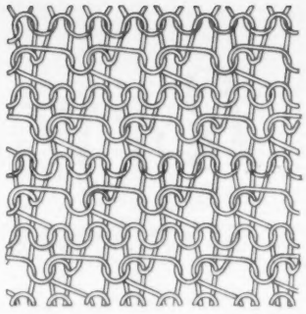
Chaotic Merchandising

At present, a state of chaos prevails throughout the whole field of non-run hosiery merchandising. The new line is proving a lifesaver to distributors and manufacturers who had suffered from lean profits. The term "non-run" became a public by-word. It was first-page news and had such excellent sales value that it was applied to hosiery of all types and descriptions. The trend toward exaggeration in non-run claims has become so pronounced that far-sighted executives see it as a real danger. One executive voiced the following caution which may serve as a 1933 text in selling non-runs:

"Three-threads, even if non-run, remain three-threads. Don't tell buyers a three-thread non-run stocking will wear like a 12-thread staple. Remember, the new stocking is run-proof, not wear-proof. Enthusiasm is all right, the non-runs warrant it—but we only injure ourselves by exaggerated claims".

Enthusiasm has led the trade into another pitfall; namely, the indiscriminate use of terms. This is not so much the fault of the distributor; it is due to the general condition of misinformation—or *no* information—which prevails throughout the industry regarding this stocking. For the protection of the hosiery industry as a whole, it is imperative that there be some clarification of phraseology in describing non-runs.

Today as result of three months of hit-or-miss description, there is an abundant crop of definitive terms



Fabric made according to Schwartz patent

At right — Belding-Heminway - Corticelli stocking made under Schwartz patent

in use. "Non-run," "run-resist," "can't-run" and "won't run" are only a few of these. Just what do the terms mean? No one in the distributing division, few even among manufacturers' selling staffs, know exactly. Yet the terms are bandied about loosely in advertising to the disparagement of real non-runs and hosiery generally.

This evil would be greatly mitigated if the industry could be won to acceptance of some common definition. The present situation is prejudicial to the interests of the industry: various derivatives of the term "non-run" are being tacked to a whole range of stockings, good, bad and indifferent, and retailing at anywhere from 50c. to $1.65.

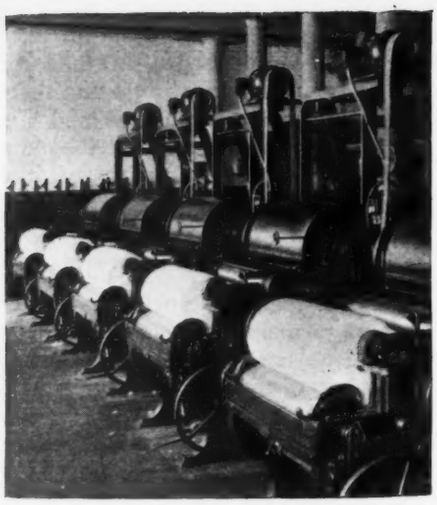
Still another problem faces the non-run full-fashioned hosiery manufacturers; that is, the growing competition of seamless non-run and cut-and-sewn run-proof stockings. Seamless sells actively at 50c. to 69c. retail and cut-and-sewn enjoys a good demand in approximately the same price range, both types being excellent value in their field. However, manufacturers of non-run full-fashioned hosiery now are beginning to ask themselves this question: Will the low-priced lines weaken the quality appeal of the lines retailing at $1.35 and upward? It is too early to attempt any answer, but the question is one which the full-fashioned group must consider in planning its 1933 promotion.

The non-run full-fashioned manufacturers have many other vital problems and they are making progress toward solution. One example of the difficulties they face is the misunderstanding which developed as regards the relationship between licensees and the wholesale and retail market in connection with the sale of hosiery made under the Schwartz patent. The Textile Patents Corp., owners of the Schwartz rights, clarified its position on this point early in December with the announcement of definitions of the different groups of distributors. This announcement facilitated the selling task.

Such then is the status and outlook of non-run hosiery, after three months of introduction. The new stocking opens a new path in hosiery promotion, and logically enough, it calls for new selling methods. Market research plus consumer reaction finally will determine its destiny in the stocking field. However, old methods must be discarded and new ones developed if the trade is to utilize non-run's possibilities as the year's biggest opportunity for a price trade-up in hosiery.

Staple Rayon

SPUN SUCCESSFULLY ON COTTON MACHINERY



By Arthur E. Oxley,
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Textile Consultant, New York

IN these days of industrial stress, the possibility of employing even one standard machine to perform an operation satisfactorily on a new type of raw material is a consideration well worth the attention of any mill management, particularly if the necessary modifications for adequate control of the material may be installed with little or no risk of financial loss or prestige for those who create. Yet such modifications can be made, not only at one machine, but at various stages throughout the entire sequence of cotton-spinning operations.

In the present article it is proposed to indicate what changes are desirable on such standard machines in order that a proper control of rayon staple fiber may be assured, whether the processing involves 100% rayon or any blending of it with a suitable grade of cotton.

There are two very important characteristics of rayon fibers which determine the necessary innovations. First, there is the absence of convolutions, so important in qualifying the cotton fiber as a spinning material, for these convolutions give "clinging power" to the grouped fibers. The absence of such convolutions in the rayon fiber endow it with low clinging qualities between fiber and fiber; and this makes the rayon staple more difficult to control on account of its liability to spread, which in turn causes ragged lap and sliver selvages and excessive waste. Second, the rayon staple is mechanically cut to an approximately uniform length; and in this respect it has an advantage over the variable staple of the natural cotton fiber, even if the latter has been combed.

Rayon staple fiber can be purchased in compact bundles already cut to a length convenient for processing on machinery normally constructed for the handling of an average grade of Sakellaridis or Sea Island cotton. The accompanying diagram shows the typical variability of such rayon staple. There are a few somewhat longer fibers than the bulk and a few somewhat shorter. This is due to the fact that in the cutting operation all of the fibers do not lie accurately at right angles to the knives. Generally speaking, however, the rayon is much less variable in staple than either a raw or combed cotton, as a comparison of the accompanying curves indicates.

With rayon the minimum amount of processing should be done in opening and picking. It should be just sufficient to form a reasonably level lap. There is no leaf, seed, or appreciable quantity of short staple to control, and therefore the amount of cleaning required is negligible compared with what is normally done on a good grade of Sak. The only efficient operation needed is one of complete opening or "blooming"; and this must be gentle in its action, since the fibers are far more fragile than cotton of equivalent staple. A hopper opener coupled up to a Centrifair or Spinawhirl, followed by a hopper feeder direct to the lattice of a finisher picker, are all the preparatory machinery required.

The standard two- or three-blade beater, where it is now in use, should be replaced by a cylinder of the porcupine type. As there is no dust to extract, the usual dust bars should be replaced by a plain metal sheet. A lap production of about 250 lb. per hour, with almost negligible waste, can be obtained in this way with practically no damage to the staple.

Throughout the processing of staple fiber, one of the greatest problems is to prevent it from spreading or fluffing, an effect which is due to lack of cohesion or "clinging power" of the rayon fibers already mentioned. To make a satisfactory lap, a fairly high and constant relative humidity is absolutely essential. This gives compactness, and without it a lap of normal weight would be several times the thickness of a cotton lap of equal weight. Having secured this compactness, however, a second precautionary measure of an opposite kind is necessary to prevent the lap from licking when working behind the card. A dodge to overcome this is to use a few ends of roving (either Sak, or rayon) which are creeled over the finisher lap and run into the latter as it is formed. These ends determine a plane of cleavage, making the lap like a jam-roll, so that its layers unroll clean, while each layer, on account of its moisture content, is compact for presentation to the card.

Carding

Carding needs special care. All that is required is to disentangle the clots of fibers left by the opener and picker and to form a level sliver. Every possible means of reducing the amount of waste should be adopted, because this has to be returned as clean material and suffer a second risk of damage.

On the flats, cylinder, and doffer, the finest counts of wire should form the clothing, and the number of flats usually employed in cotton carding may be greatly reduced. If the flats are run forward, their speed should be reduced and the front stripping (percentage) plate should be set down as close as possible on to the cylinder so that the lightest strips are made. On a well-set and well-ground card, the strips can be made invisible except for two very small tufts at each side of the off-going

flats. This small amount of waste is inevitable and is due to fiber carried by side air currents.

Nothing like all the flats in common use as workers on cotton cards are necessary, and rayon staple can be efficiently carded by reversing the direction of motion of the flats and stripping them over the licker-in by a rear stripping device and "fancy." These devices together return the strips back to the cylinder through a slot cut in the back sheet, thus mixing the strips with the material coming from the lap by way of the licker-in and feeding it again to the cylinder and flats for a second chance. In this arrangement heavy strips must be made, for at the rear of the card there is no percentage plate which can be adjusted to make them light.

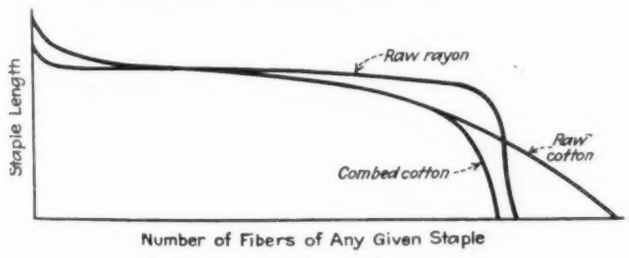
If the method of reversed flats be adopted, care must be taken to see that all the flats coming into working position at the rear of the card are well bedded to the flexibles. Otherwise, the fiber which is first blown into them, before true carding can take place, will be brought backward off the cylinder as very heavy strips, only to be returned by the stripper and "fancy" back to equally inefficient flats. Repetitions of this cycle will do considerable damage to the fiber.

The licker-in should be of standard type, as used for a good grade of Sak., and should not be run at a higher speed than 100 to 150 r.p.m. Its undercasing should be solid—grid bars and mote knives being dispensed with —thereby practically eliminating licker-in fly. The lap selvage guides should be carefully set so as to make the thickness of the lap appreciably greater at the edges than over the rest of the feed, in order to prevent the formation of weak web selvages at the front of the card. Such ragged selvages will in any event produce a lumpy sliver or may cause the web to collapse entirely.

No cylinder grids should be used. Further special precautions are needed at the front of the card. It is advisable to remove the web guide, as even this is liable to make uneven selvages by folding back the web. All traces of cotton wax should be removed from the calender rollers and coiler when processing 100% rayon. The coiler is a particularly annoying mechanism in this respect, and much sliver unfit for further processing will be made if due attention is not paid to this item.

With the above precautions, the total waste at carding should not be greater than 1½ to 2%. Most of this waste is uncontrollable good material which can be returned to the opening plant. The result is an irrecoverable waste of about ½% or even less. Also, it should be pointed out that in spite of all these precautions, the card has proved itself to be a damaging machine, for it has changed the variability of the staple from that shown for rayon in the accompanying graph to approximately that for raw cotton. Hence the advisability of combing.

Even if it were not for the removal of damaged fiber made by the preceding processes, it would be desirable to comb, because there are small blemishes in the material



Typical variations in lengths of staple rayon and cotton

which the card has not eliminated. Some of these are microscopic; yet they are "noticeable" by subsequent drafting rollers, and the drafting of rayon staple is much more difficult than that of cotton.

The combing operation should be made very light, but should remove traces of nep and any damaged fiber formed by earlier operations—also any signs of foreign matter. The total waste of combing should not be greater than 3 or 4%.

Only two heads of drawing are necessary. In fact, there is usually an appreciable loss both in quality and efficiency if a third head is used. Even cotton may be over-parallelized (and thereby weakened) by three drawings, and rayon staple is far more likely to be so. Trouble can usually be seen as early as the first head by the appearance of ragged selvages between the front rollers and the coiler trumpet. To obviate this excessive fly, selvage guides should be inserted between the successive lines of rollers. These are made of fiber or celluloid and merely ride on the tops of the slivers. The introduction of but one of these guides produces a marked improvement on the quality of the web and reduces the amount of fly very considerably. For good results, all contacting metal surfaces must be free from cotton wax. All coiler cans must have springs.

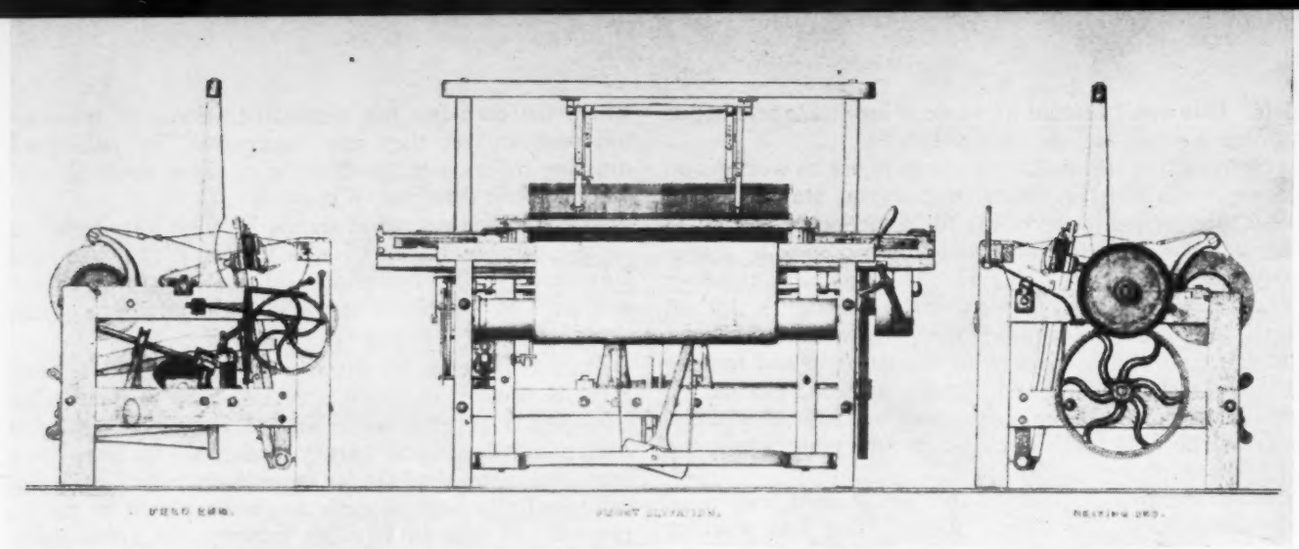
No sliver cans larger than 9 in. should be presented to a slubber, because larger sizes necessitate longer lengths of sliver up to the feed rollers. Sliver is the most regular product in the mill and is, at the same time, the easiest product to damage. As for the roving frames, selvage guides are advocated at the slubber; but, on account of the gradually increasing fineness of the roving at the intermediate and rover, it is not advisable to introduce them on these frames. A guide may assist in preventing fly but it may, on account of its weight, cause greater inequality.

Unless it is possible to ensure that specially plated flyers will not in the course of time tend to peel, it is not advisable to use them on fine spinning frames. A plain steel flyer, providing it is kept clean, is satisfactory. Normal cotton drafts are workable, but it is usual to put in a higher twist at each stage; and if this is done, the "ends down" do not exceed those for fine cotton.

Ring Spinning

Rayon staple is hardest to control in its early stages of processing. Once a good roving has been made the ring frame causes little anxiety, and drafts of from ten to fifteen can be used to give satisfactory yarns—it being assumed that double roving is employed. Metallic top middle rollers are advocated. Providing good settings are ensured, practically no damage to the staple is caused during spinning, or indeed anywhere after drawing.

It is apparent from what has been said that the proper control of rayon staple fiber by cotton machinery demands suitable modifications of existing machines, rather than the introduction of new ones or the elimination of any but some of the earlier preparatory machines. The more important modifications necessary apply generally up to and including the comber. For this reason it is desirable when processing yarns composed of a particular blend, of say 75% rayon and 25% cotton, to carry out the rayon and cotton operations up to the end of combing independently and to combine the two materials at the first drawing. The second drawing and subsequent doublings at the speeders and spinning frame ensure a final satisfactory blending of the two fibers in the yarn.



Original Waltham loom—probably as modified about 1827

NEW LIGHT ON THE DEVELOPMENT OF EARLY AMERICAN *Power Loom*

By Jonathan Thayer Lincoln

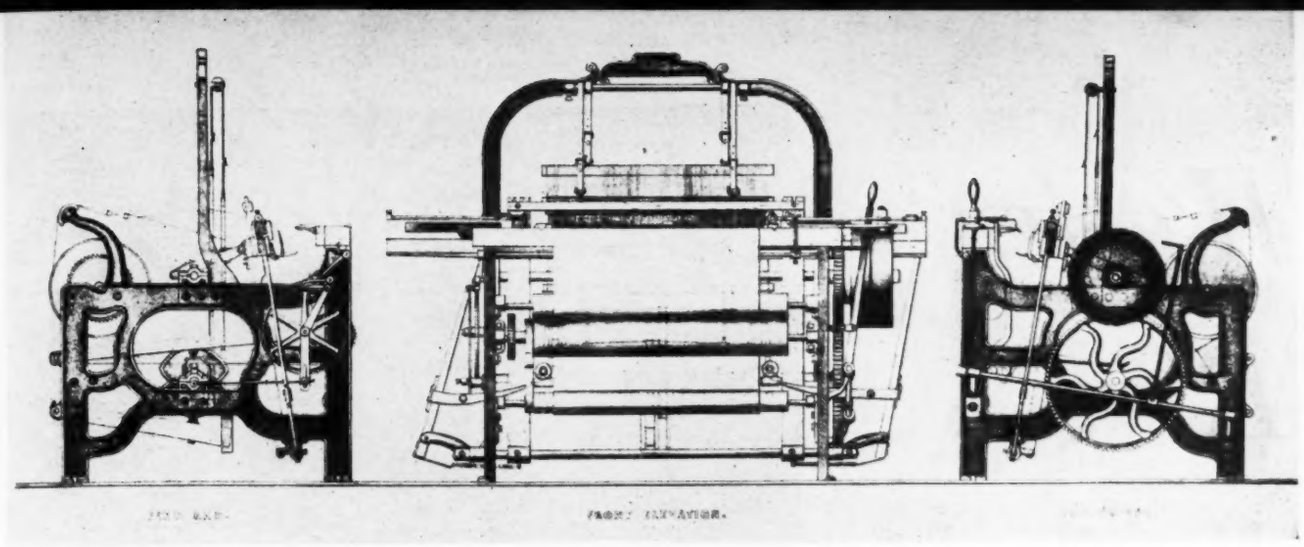
◆ *Using drawings recently presented to the Business Historical Society by the Saco-Lowell Shops, and a hitherto unpublished letter, the author throws new light on the construction and successive modifications of the first successful American power loom. A previous article by the author, in the Jan. 16, 1932, issue of* TEXTILE WORLD, *revealed the origin of piece-work in early loom building. The Business Historical Society, with headquarters in the Baker Library of Harvard University, is in search of all existing material relating to the early development of textile machinery.*

IN 1814, Francis Cabot Lowell designed the first power loom to be operated successfully in the United States. This loom, which was patented in the following year by Lowell and Patrick Tracy Jackson, was made in large numbers in the machine shop of the Boston Mfg. Co. by Paul Moody, not only for his own company, but for other factories which were soon erected north of Boston. With the establishment of the Merrimack Mfg. Co. in 1822, this loom, improved by Moody and Jacob Perkins, was introduced in Lowell, where it was built successively by the Merrimack Mfg. Co., the Proprietors of the Locks and Canals on the Merrimack River, and the Lowell Machine Shop. This incident is well known and has been related in all the accounts of the introduction of power weaving into the United States. Little, however, is accurately known concerning the original model of this loom and its gradual improvement under the influence of the so-called "Scotch loom" which William Gilmore, almost simultaneously, commenced building for the Rhode Island factories.

Previous descriptions of the first power loom to be successfully operated in the United States are based upon the account given by Nathan Appleton in a pamphlet entitled, "Introduction of the Power Loom and Origin of Lowell," which was written more than 40 years after the event. "Lowell's loom," says Appleton, "was different in several particulars from the English loom which was afterwards made public. The principal movement was by a cam, revolving with an eccentric motion, which gave place to the crank motion now universally used; some minor improvements have since been invented, mostly tending to give it increased speed." This technically naïve statement is surely an inadequate description of so important an innovation as the first American power loom. Fortunately, a hitherto unpublished letter of one of the pioneer cotton manufacturers, Samuel Batchelder, throws additional light upon the development of the modern loom from the early designs of Lowell and Gilmore.

This letter, now in the possession of the Batchelder family, is dated at Cambridge, Mass., Dec. 18, 1877, and was written to James B. Durfee, then treasurer of the Hamilton Co., of which corporation Batchelder was the first agent. The letter, in part, reads as follows:

The introduction of spinning machinery by Slater is sufficiently well known, and Mr. Appleton has given a very interesting account of the introduction of the power loom at Waltham in 1814. My own connection with the business began almost half a dozen years before that date when, with two associates, we built at New Ipswich the second cotton mill in New Hampshire, which went into operation in 1808. Soon after that time the restrictions upon importations from Great Britain, by which we had been supplied in this country with most articles of cotton manufacture, produced such a scarcity as to drive us into the necessity of attempting to manufacture for ourselves. . . . We could not import English machinery, as such were their restrictions that we could obtain neither models nor drawings. Mr. F. C. Lowell had visited the cotton mills in England and Scotland and studied the construction and operation of their machines, as well as could be done without pen or pencil, and when he and his associates undertook to build a mill for power weaving it was only with the idea that what had bene done could be done again, and Mr. Paul Moody was employed to do it. So entirely unacquainted were they with the details of what



Waltham loom, circa 1850, showing radical changes

they proposed to do that Mr. P. T. Jackson told me their first step was to get the model of a loom made of mahogany, in order to learn the process of weaving.

A careful search for specifications of the patent granted Lowell and Jackson in 1815 has thus far been unavailing; but from a study of contemporary power looms in Great Britain, the material above referred to, and other fragments of information that have come down to us, we may form a fairly accurate notion of the chief characteristics of the first successful American loom.

In England and Scotland, where Francis Cabot Lowell first became acquainted with textile machinery, the evolution of the power loom from Cartwright's invention followed two distinct lines. First, there was developed the so-called Wiper loom, in which the lay was operated by a large cam working in opposition to powerful springs at the front of the loom and connected with the lay by straps. A reciprocating motion was thus obtained, the lay being carried to its back position by the cams, then released and pulled forward by the springs. This was the principle adopted by Lowell for what Appleton calls "the principal movement" of his loom. The second line of development in England, which was far more successful, first appeared in the loom patented, in 1803, by Horrocks, a cotton manufacturer of Stockport, Eng., and improved by him in subsequent patents, taken out respectively in 1803 and 1813. Horrock's loom, in its final form, differed from early models in that it was constructed almost entirely of iron. Moreover the lay was operated by a double crank, as was a previous but unsuccessful loom, patented in England by Peter Marsland in 1806. It contained the first satisfactory take-up motion.

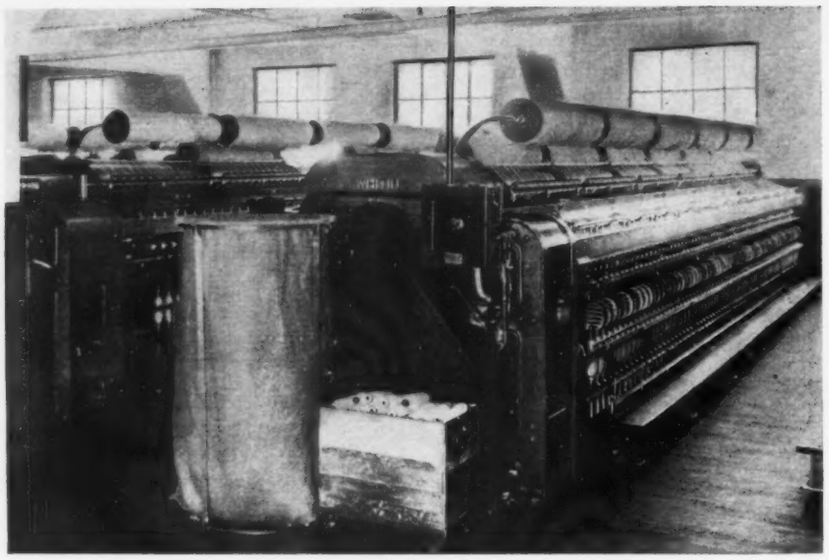
Horrocks' "iron loom," being unusually compact and simple in construction, ran at a higher speed than the earlier looms with their wooden frames and clumsy lay motion, and thus came into universal use in Great Britain. It was the basis of the 12 looms built, in 1817, by William Gilmore for the Lyman Mill in North Providence and was afterwards improved, in this country, by David Wilkinson of Pawtucket and other loom builders in the Rhode Island section.

The two drawings, presented herewith, illustrate the development of the Waltham loom and, specifically, the modification of Lowell's first model to conform to the more successful loom which had been adopted by the Rhode Island manufacturers. While these drawings are undated, they bear the name of William B. Bement as delineator, which fixes the date of both as between the years 1845 and 1851, the period during which Bement, who afterwards became an important figure in the machine-tool industry, was employed by the Lowell Machine Shop as designer. The first of these drawings, that of the "Power Loom with Wooden Frame for Cotton Goods," undoubtedly bears a close resemblance to the original Waltham loom as modified, about 1827, by the substitution of the simple rotary motion of a crank shaft for the cumbersome reciprocating motion of cams and springs employed to operate the lay. Like the original mahogany model the frame is of wood,—the Rhode Island loom, like Horrock's, had been built almost entirely of iron. The picking motion is similar to the same motion in the Wiper loom upon which Lowell's invention was modelled, and the same similarity is also to be noted in the harness motion. It is probable, however, that the take-up motion had been considerably modified.

The second drawing representing, the "Power Loom for Printed Goods," displays a radical departure from the earlier model. The picking motion has been completely changed from the "fly shuttle" principle, taken over from the hand loom, and is approaching its modern form, through the introduction of picker sticks operated by pick cams. The harness motion is practically unchanged, but distinct modifications may be noted in both the let-off and the take-up motions. Moreover, a revolutionary change is evident in the substitution of iron for wood in the construction of the loom. The frame, with the exception of the breast-beam, is completely of iron and in this respect conforms closely to the loom developed in Rhode Island. Wood, however, has been retained for some of the working parts, notably for the lay swords and harness treadles.

To those familiar with loom construction these drawings will make evident the fact that the modern American loom was evolved from two distinct sources, the Waltham model and Horrocks' invention (sometimes erroneously called the "Scotch loom"); and that in this evolution the influence of the latter was the stronger. We can no longer accept Appleton's statement—and the inference which was formerly based upon it—that the Waltham loom in 1858 was, with the exception of the crank motion, substantially the same as the loom designed by Lowell and built by Moody. "The minor improvements" afterwards invented, "mostly tending to give it increased speed" were, in fact, fundamental changes in which were combined the skill of both the Waltham machine builders and the Rhode Island mechanics.

Woolen Ring Spinning



PROBLEMS CONFRONTING EXPERIENCED MULE MAN

◆ *The comparatively recent introduction of the ring spinning frame to woolen manufacture has necessitated the re-education of many spinners expert in the operation of the mule. In the belief that the more important questions of the mule spinner who expects to have a set of frames placed under his charge can best be answered by a man who has been through this experience,* TEXTILE WORLD *has asked a member of a large mill organization, one of the first to adopt the frame, to prepare the discussion which follows:*

THE first reaction of an experienced mule spinner who is confronted with the problem of spinning the same yarns on a ring frame, is that it cannot be done. His first questions are: (1) How are we going to draft in one-quarter the length we have on a mule? (2) How are we going to equalize our thick and thin places in our roving? (3) How are we going to piece up our spool ends? (4) How are we going to piece up our spun ends? We have not got the range of change we have on a mule, he says; the control is too high and is on the opposite side for the operator to tend. He raises many other flash objections to the machine in general.

Usually the difficulties he foresees, due to his lack of familiarity with this type of machine, can easily be removed to his satisfaction. A few experiments, if conducted with unbiased mind, will convince him. First, it will be advisable to take the roving just as it has been delivered to the mule and try to duplicate his draft and twists on the ring frame. Tests should be conducted; and if the same results are not obtained, the following studies should be made:

Is the roving across the spool and through the spool within reasonable variances, depending on the type of yarn run? If not, it will be necessary to go back to the scale pan, catch ten or twenty weighings, and check. Right here many yarn troubles start from faulty mechanism, hangings, and uneven feeding. After corrections have been made and the roving runs within the limits, yarns from the ring frame should show less variations.

If the roving stands on spools for any length of time under varying humidity conditions, trouble can be expected in the ultimate yarns. When variations occur from different moisture contents, troubles may be traced back to the oiling system. The required amount of oil or emulsion must be evenly distributed over a given mount of stock. This is a long way ahead of the spinning operation, but the relation is very close. Humidity conditions after oiling, through the spinning, very seldom receive enough consideration.

Assuming now that we have roving as nearly correct as possible, let us answer the first question from the spinner. The roving is started with the same draft as on the mule. If yarn drafts are uneven, it is necessary to go back to the carder and reduce the weight of the roving a very little and try again. Drafts can be satisfactorily made up to 36 in. of roving to 72 in. of yarn on fine counts, and from 50 to 72 in. on some coarser yarns. The amount of draft possible is determined by the stock entirely.

As for the thick and thin places in the roving, if the roving delivered to the spinning room is correct, such variations as exist will be evened up. Piecing up a spool end is accomplished by picking up the broken end with a pipe cleaner and feeding it through the twister head. Piecing up spun ends is accomplished in the same manner as on cotton spinning frames. With a few gears, furnished by the manufacturer, any range of changes can be made in a very few minutes. Many cotton-spinning frames have raised foot walks that do not interfere with production. The machines can be arranged back to back so that there will not be more than two single sides in any gang of machines. In this way the operators can work together, as is desired when on piece work.

Spinning onto large bobbins, 12 or 13 in. long, as generally used for carpet yarn, gives a little trouble at the start due to its coarseness and speed at which it is spun. When trouble occurs, the traveler man must be put on the job. Some trouble may be had on finer yarns, also, especially yarns containing a large percentage of short fibers. The traveler man can help greatly here also.

Too Much Credit

NOT GOOD FOR THE INDUSTRY

By E. L. Milliken

◆ *Robert G. Blumenthal, vice-president of the Commercial Investment Trust Corp., stated recently in a public address that, no matter whether the present improved demand in textiles is permanent or temporary, a credit man should maintain the same conservatism as has prevailed during the last year. A somewhat similar thought is applied by the author of the accompanying article, to the question of credit extensions to textile manufacturing concerns. . . . Although everyone will deplore the inability of soundly managed enterprises to secure adequate credit facilities, no one will dispute Mr. Milliken's statement that "the new policy whereby banks extend their functions to closer contact with the business of their customers augurs well for the future."*—Editor.

SOME units of the textile industry have suffered from receiving an excess of credit. This may sound paradoxical after a period in which textile credits have not been viewed with particular favor in many quarters. Too much credit is to some extent a factor in the over-production and resultant excessive competition in some branches of the industry.

The result of accepting these credits has left some companies with no reserve sources open for emergencies. Simultaneous use to the maximum, of bank lines and factored accounts receivable left no avenue open during a period when textile securities both senior and junior were not popular with investors.

A company cannot operate successfully if its working capital is so meager as to require large outstanding bank loans while at the same time pledging its receivables. Either one or the other should always be open.

In times of dull business receivables naturally decline. This forces a company with insufficient working capital to resort to its bank lines. If they are already used to the limit nothing but new money from those already financially interested can avert a catastrophe.

Too many companies start or continue in business with too little capital and too much reliance on bank lines. Likewise some companies have reorganized with the same condition existing. Banks have in some cases been a party to allowing this to happen.

A business concern having ample capital, making a product of value to the community and paying fair wages to its employees, has really an inherent right to make an honest profit. This right is infringed every time a competing concern inadequately financed is in any way enabled to start to do business.

We have altogether too many units of production. In recent months the stress of times has reduced this number through the application of pressure by some credit agencies who wittingly or unwittingly contributed to the original growth.

Losses in industry are eventually a tax on that industry as a whole and eventually on the consumer. Credit losses enter either directly into the cost of the products manufactured or indirectly through the operation of simple economic laws.

The fallen market for textile securities brought about by conditions in the industry has raised the cost of capital needed, if indeed it can be obtained. Such added cost can be recovered only through inclusion in the price of the product or economies effected in operation. Unfortunately in an industry where much machinery is obsolete, reduced costs through replacement by modern types requires more capital and we are back at the point from which we started. Again we find the need for a continually open source of credit temporarily to finance plant improvements. Some door must always be open to the under-financed company, but seldom is.

The mistakes of the past are being made the capital of tomorrow. Credit sources are analyzing and scanning more closely the entire field of affairs of those to whom they are selling or contemplate selling their dollars. Men, methods, machinery and management are being subjected to careful scrutiny. More frequent financial statements are expected. It is a long time between annual statements; in times of stress much may happen in one month to change the liquid position.

Irksome though this new attitude may seem to those accustomed to the older easy-going methods, it is all working for the benefit of industry. No man or group of men are being done a favor by assistance enabling him or them to go into, or to continue, business on an unsound basis. Better to stay out or get out before losses are taken. And better for that particular industry as a whole. Unwise nursing of critically ill "sick sisters" results in price cutting and cut-throat competition.

The new policy whereby banks extend their functions to closer contact with the business of their customers augurs well for the future. In the reconstructed and changed era which it would seem we are about to enter, the investments of our people either in bank stocks or industrial securities will be safer and industry sounder.

The extension of excessive credit to textile manufacturing companies has in turn induced the taking of unwise credit risks on their part. This action has been stimulated by the scramble for business. As a result distribution agencies have multiplied, augmenting indirectly competition among producers.

Two facts have not always been recognized: first, that goods are not really completely sold until paid for; second, that credit losses are in the last analysis a burden on the entire industry.

Usually an over-supply of a commodity adversely affects the seller. An over-supply of credit, however, hurts both the grantor and him who takes it. It leads to abuses and unwise risks ending in losses and disaster.

Rubber Textiles

TAKE ON A NEW FORM AND OFFER NEW POSSIBILITIES

TAKE something old and something new, and add a lot of imagination. If you are fortunate, the blend may result in a creation like "Lastex."

The knitting of covered rubber thread into surgical stockings has been carried on for three generations. Covered rubber was first woven about 1889 when the "Bike" athletic supporter was placed on the market. What *is* new is a thread of a fineness such that it can be knit on fine-gage machines and woven into semi-sheer fabrics. "Lastex," the first product to conform to these specifications, is a blend of the old desire for an elastic textile, the comparatively new process of making a rayon filament by forcing a liquid through a small orifice and then hardening, and the still newer latex products. The imagination was supplied by Percy Adamson who brought the three together and produced "Lastex."

The U. S. Rubber Co., manufacturer of "Lastex," is not keen to have the exact details of the process publicized. However, some conception of the method can be gained by putting together a few facts and a few guesses. Latex (described in an article which appeared in TEXTILE WORLD, March 19, 1932) is the milky juice of a group of trees from which, by subsequent chemical processes, rubber is produced. Research has developed compounds of latex to the point where they can be applied in a liquid state and solidified by temperatures even as low as obtained by the ordinary home radiator.

Durene covered Lastex foundation garment made by Kops Bros. Its two-way stretch provides perfect fit and comfort

It is reasonable to suppose that one of the compounds of latex, in liquid form, can be forced through a small orifice—just as the viscose rayon solution is forced—and then solidified. The result is a continuous, round rubber thread; the fineness being determined by the size of the orifice. U. S. Rubber Co. holds patents Nos. 1,545,257 and 1,822,847 on the process.

Covering such a rubber thread with cotton, silk, rayon or wool, presents certain difficulties. Covering fine copper wire with yarns as fine as 140/1 cotton is nothing new; neither is covering a rubber thread. In the one case, however, the medium to be covered is not elastic; and in the other the thread is considerably coarser. Here again the U. S. Rubber Co. is reticent concerning details, but the supposition is that the methods of covering wire were combined with the ring traveler principle; the yarn being spiraled about the rubber thread.

Fine Yarns Used in Covering

To take a fine rubber thread and cover it with a coarse yarn would obviously defeat the purpose of making a fine thread in the first place. Consequently, we find such a yarn as 100/1 cotton most used; worsted yarns up to 1/105s; and rayon and acetate yarns of 45, 75 and 100 denier. The yarns are usually wound multiple end, as this increases production on the covering machine. The exact size of the yarn and the number of ends are determined by the size of the rubber thread to be covered.

No accurate comparison can be made by ordinary yarn-numbering systems between the covered rubber thread and ordinary yarn sizes, since rubber is compact and weighs more per yard than a cotton or worsted yarn of similar diameter. However, a rough estimate would be that a covered rubber thread can be produced of about the same diameter as a 30/1 cotton yarn.

The old process of producing an elastic textile was to take a sheet of rubber 120 yd. long and cut it into narrow strips; the square threads being later covered with cotton, wool, silk or rayon. Producers of this type of elastic thread are frank to admit that they did not see the potentialities of really fine covered rubber. They were content to produce a coarse thread that could be used in knitting elastic hose for varicose veins, or woven as a warp in narrow fabrics. In fact, the tendency of manufacturers was to produce coarser types as time

went on. "Lastex" woke them up with the dawn of new light on the whole situation.

Far from fighting the "Lastex" development, most of the old-line manufacturers of covered rubber thread have cashed in on the resultant publicity. They simply started to cut the rubber in finer strips and developed machine refinements which would enable them to cover a fine thread. Both the "Lastex" and cut-rubber methods have certain advantages. The rubber thread of "Lastex" is round, continuous, and can be made finer. Cut-rubber specialists claim that, due to the fact that the tail of the rubber molecule is knocked off during the usual vulcanization, their product has less of an elongation factor; in other words, it will return more nearly to its original length after stretching. Whatever other distinctive merits each type may have, however, they are submerged when the whole development of a fine elastic textile is considered.

Usage Has Been Varied

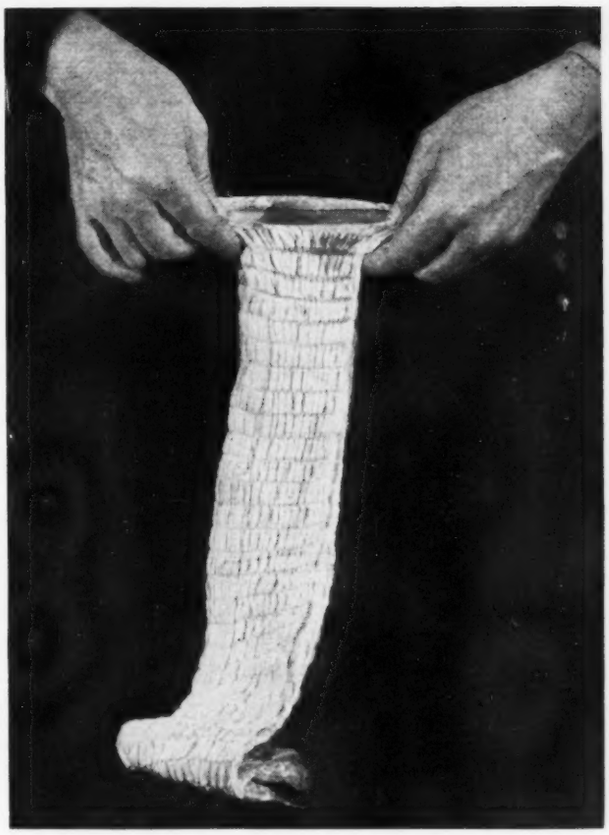
Uses? In clothing, vertically from shoes to hats; horizontally from corsets to sweaters. There can be no question that the depression has aided the growth of fine covered rubber thread. Firms have tried, as they have never tried before, to produce something new. Many of the experiments will, undoubtedly peter out, but many will end in success.

The first developments were along the usual lines. Covered rubber thread had been used for years in women's girdles but the elastic feature had been confined to the warp. A fabric was constructed with the usual elastic warp and the new fine covered rubber as filling; and the "two-way stretch" was born. What with modern styles women desired a foundation garment which would combine the maximum of restraint with the minimum of bulk, and it was but a step to weave the fine thread in both warp and filling, thus producing a semi-sheer elastic fabric. Such fabrics have been used both as inserts in foundation garments and to construct the entire garment.

From there the story leads into diverse fields. The close-fitting hats of today require an individual fitting when constructed with the usual textile materials. A hat that would fit any head was greatly to be desired. An elastic textile supplied the answer. Weave a fabric with every tenth or twentieth warp end of tensioned elastic and when taken from the loom, you have a fabric with a crepe appearance that, when made into a hat, will fit the head of a giant or a dwarf. The so-called "crinkle" fabrics produced in this manner have been particularly popular and many variations of cotton, rayon, silk or wool have been used. Even velvets have been woven with tensioned elastic; the effect being a soft, luxurious fabric with the contour of a very rough crepe.

A peculiar fabric with a "waffle" appearance has been produced where tensioned elastic is spaced in both warp and filling. For example, if every twentieth end in the warp and every twentieth pick in the filling is of tensioned rubber covered thread, release of the tension after weaving will cause small puffs of the fabric between the squares formed by the elastic threads.

One of the earliest uses of fine covered rubber thread was in men's half hose. At the top of the sock a strip was knit of a rubber thread covered with a material similar to that used in the body of the sock. The resulting sock stayed in place without use of a garter. The same idea has been used with considerable success in golf hose.



White velvet with fine cut-rubber ends in the warp which contract and give a rough crepe effect

Several of the larger bathing-suit manufacturers have announced that their 1933 lines will feature the "two-way stretch." In some of the garments the rubber thread covered with fine worsted yarn, will be knitted in conjunction with the regular worsted yarn throughout the entire suit. In others the elastic feature will be confined to certain sections. Manufacturers claim that such a swimsuit will always be form-fitting but will not bind. Woven fabrics of worsted and elastic are also being used for bathing suits.

Many novelties have been produced. Among them might be mentioned knitted gloves of fine covered rubber which will fit the daintiest hand as closely as they will fit a truck driver's fist. Women's mesh stockings with style appeal are a strange sort of cousin to the old surgical stocking.

The most fascinating field for speculation is the extent to which fine covered rubber thread will be used in the major items of clothing, such as dresses and suits. Some of the Parisian dressmakers are said to be considerably exercised over the possibility of doing away with the need for alterations by cunningly using inserts of elastic at strategic points. Ultimate incorporation of the elastic feature into the entire garment is something to stagger the imagination; sizes would mean little and the staid dowager could wear her debutante daughter's clothing, or the other way around.

At the present moment it seems more likely that elastic thread will be used only in sections of clothing rather than in the entire garment. Sport skirts with elastic tops are an actuality as are sweaters with fitted waistlines. No matter what the future brings, fine covered rubber thread has already taken its place as one of the depression's prize "babies."

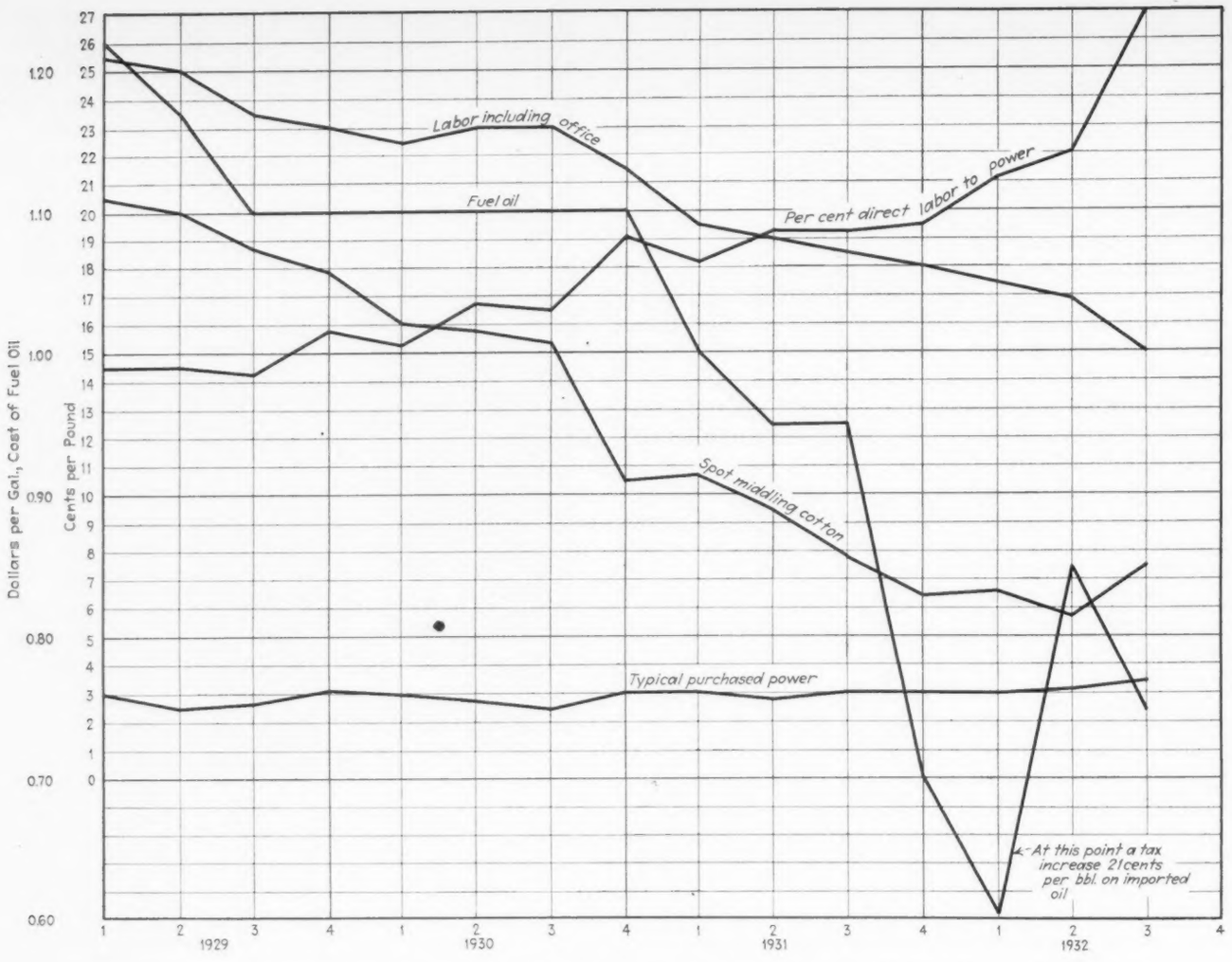


Fig. 1. Relative costs for labor, material, and power during the years 1929, 1930, 1931, and the first three-quarters of 1932 in a typical fine-goods mill operating wholly on purchased power. Cost of fuel oil in dollars per gallon is included. Note increase in power cost expressed as percentage of payroll (percentage scale identical with "cents per pound").

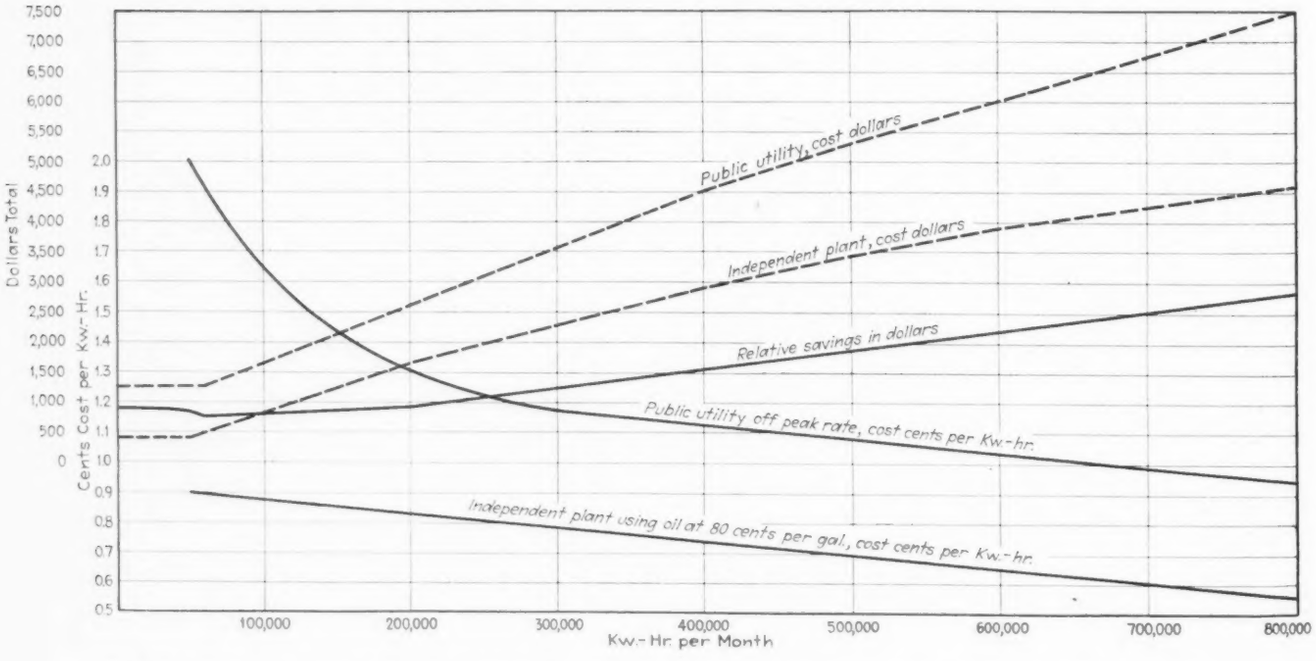
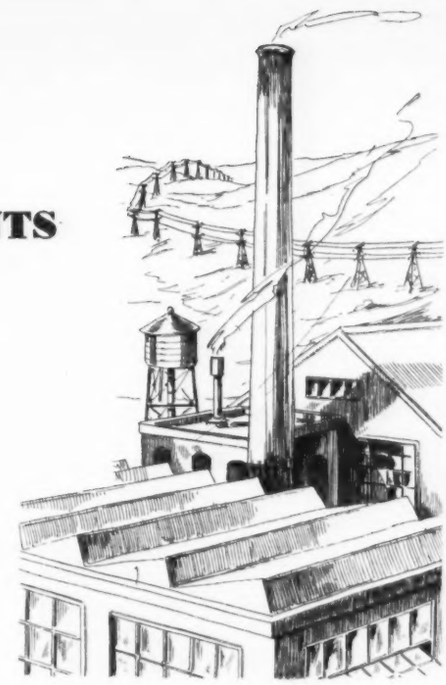

Public utility, cost dollars
Independent plant, cost dollars
Relative savings in dollars
Public utility off peak rate, cost cents per Kw.-hr.
Independent plant using oil at 80 cents per gal., cost cents per Kw.-hr.
Dollars Total
Cents Cost per Kw.-Hr.
Kw.-Hr. per Month

Fig. 2. Cost of operating a mill-owned power plant (practically no process steam used) as compared with public-utility rate.

Power Costs

AFFECTED BY NEW ELEMENTS NOW IN THE PICTURE

By J. J. McElroy
Superintendent, Maverick Mills



◆ *Despite the fact that other manufacturing expenses have decreased, the cost of purchased power has, in general, shown no decline from the levels of 1929. It is vital that textile power costs be reduced. How this best can be done is open to controversy. In the following article Mr. McElroy advances the argument that there is little hope that the public utility companies can make material reductions in their rates in the near future, and that for this reason the textile mill which has its own up-to-date power plant is in a position to make big savings. Other authorities believe that within a comparatively short time the utility companies will be able to supply power at substantially lower rates than are now possible; and these men point out also the various advantages of central-station over isolated-plant power, such as greater reliability, release of capital—otherwise invested in power plants—for production proper, and ability to supply increasing demands with a minimum of initial expense and trouble. Under present conditions, power costs are of increasing importance to textile mills, and we shall welcome comments from any of our readers as to most effective means for bringing them in line with other manufacturing expenses.*

ALL of us who have been purchasing power know that we are paying a larger percentage for this service today, as compared with labor, than we did in 1929. The average fine-goods mill was probably paying 14% of its payroll for power in 1929. This steadily increased to about 17% in 1930, 19% in 1931, 21½% for the first and second quarters of 1932, and at the present moment it is, undoubtedly, in the neighborhood of 28%. It is imperative that we take steps to counteract this condition.

The centralized public-utility companies, with their large producing units and efficient technical management, will always be a major factor in the consideration of power costs. Therefore we should give some thought first to the position of the public utilities and see if we can form any hope that in the near future we shall be able to get materially lower power costs from them.

Generally speaking, the utilities are overcapitalized and are in a difficult position in spite of their tremendous reserves. Unless things, as a whole, swing back to 1929 standards, they have overextended their capacity and built up a top-heavy financial structure.

According to statistics, 39% of the total investment in the public utilities in the country is in the plants themselves; the rest is in distribution lines, etc. These plants are splendid, large, well-operated units, the last word in economical performance and, undoubtedly, some day will be relieved of the enormous financial charges that are now added to the actual cost of production. When this occurs, even a small, efficient plant will again be put on the shelf. Today, however, this picture is at a distance, and the conclusion is that the mill operating on purchased power and depending solely on utilities is placed under a decided handicap when competing against the mill operating its own power plant.

It would seem, therefore, if you believe there will be no sharp upturn to 1929 standards, that it would be a good plan to investigate the possibilities of private-plant generation. Even if later the utilities can get in line, reducing enough of their so-called "invested capital" so they can sell power lower than you can make it, their rates will be determined largely by what you can do in the mill-owned power plant. An example of this was brought to the writer's attention recently. The case is as follows:

In 1926 the management of a certain textile mill decided that some improvement could be made in the power plant to make it more reliable and economical. At that time the mill was operating sixteen Manning-type boilers, which were costing $10,000 a year to keep in condition; also the efficiency was poor. In 1928, two new cross-drum 750-hp. boilers were installed, and a third one was added in 1929. This installation replaced the entire Manning layout. The first year of operation showed a saving of $38,000 on steam costs alone. Later a used turbine of some 3,000-kw. capacity that fitted nicely into the picture was obtained. Today this mill can produce steam at $0.23 per 1,000 lb. delivered, and current at 0.005 per kilowatt-hour.

A short time ago a public utility company asked this mill to take so-called "dump power" at a rate somewhat lower than the mill's actual cost of production. The mill is now buying this power on a short-term agreement. Here is an actual case where the fact that a mill had its own generating plant resulted in an extremely low rate being offered by the utility.

A big problem of management is power-plant policy. The mill executives should study the general economics

of the situation and decide upon a broad policy as to the amount of new investment which it is desirable to make in the power business. Each mill's problem is entirely different, and must be studied carefully; but it is the writer's belief that, if a five-year plan were adopted for payment of all new equipment and improvements, the money spent for installing modern auxiliaries and bringing the power plant up-to-date would be a good, safe investment for the mill.

Relative costs by quarters since 1929, of material, labor, and power in a typical fine-goods mill are shown in Fig. 1. The cost of fuel oil in dollars is also recorded. Incidentally, replies given to a questionnaire which was answered by six different textile plants checked closely with the values given in the chart.

In 1928 fuel was as high as $1.40 per barrel, terminal price, and it is interesting to note that the cost of fuel started on its downward path a year earlier than cotton. The base price of fuel oil today is $0.75, which roughly corresponds to a ton of coal at $3. One might logically expect to see purchased power reduced in proportion to fuel, as it is the base material in any power plant's operation; yet there has been no general reduction in the cost to the mill for purchased power.

Costs of a typical small generating plant are compared with purchased-power costs in Fig. 2. Practically no steam is used for processing. This comparision is up-to-date and shows private-plant operation contrasted with the lowest public-utility rate (with the exception which was noted above) of which the writer has knowledge. Study of this chart makes evident the possible savings.

Calculating Power Costs

A cost system in the set-up of a private plant is essential; and it should be an honest, accurate barometer. Each property will, undoubtedly, have different policies governing overhead and determination of costs, and must guard against trying to make figures appear better than they really are, which is often done. In the case of a mill that has a power plant twenty or more years old, which has not been operating for a number of years, it would seem that it should not be burdened with any fixed overhead expenses except its proportion of taxes, insurance, maintenance, and up-keep. The building and the machinery in it have already been depreciated to the full extent. On the other hand, the cost of all necessary improvements, new equipment, instruments, etc., that can be capitalized, should be written off on the basis of 20% per year, charging the usual 6% on the investment.

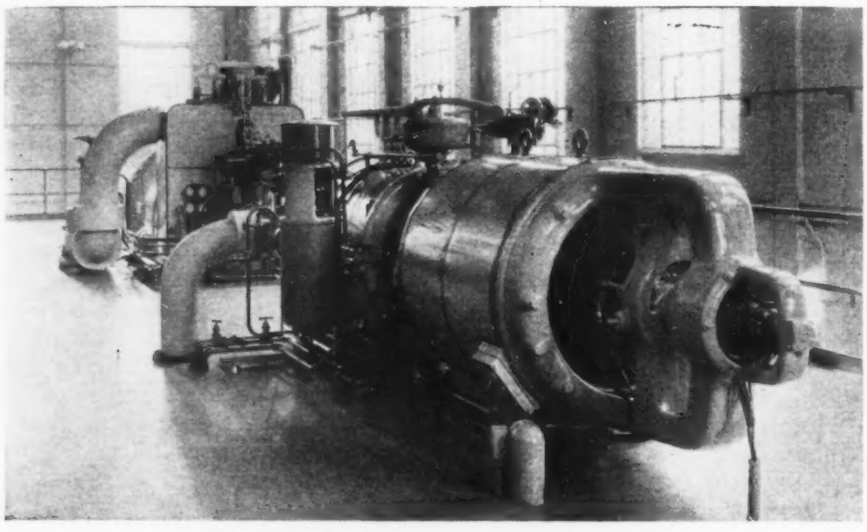
Direct material costs, such as fuel oil, lubricating oil, repair parts and incidental supplies, are handled easily; likewise, all operating labor. A small amount should be allowed for technical supervision. The writer does not belive that it is fair, under these conditions, to load the power-plant costs with office, sales, and executive overhead.

Unfortunately, even with a well-defined cost system which thoroughly covers the right charges, and places them correctly in monthly statements, it is possible to get —even in a plant well equipped with measuring instruments—a false idea in regard to the unit cost per kilowatt-hour generated. In the writer's opinion, this is most always done deliberately. The loophole is process- or heating-steam requirements and quite often the burden placed on these factors is higher than it should be, in order to show lower generating costs. Alert management, however, cannot be deceived on this score. The cost figures represented in the accompanying chart are based on a set-up as described.

Power-Plant Operation

The operation of your own power plant unquestionably adds to the burden of management. It is another major problem requiring technical supervision that, while not difficult, will at times cause worry which certainly is absent when purchasing power. The executive in charge of power generation should consider not only the power plant, but the distribution and the use of this service to get the best results and over-all efficiency. The power plant is handicapped severely if the current is delivered through poor lines to the motors and if the loads on the motors are poorly engineered. In other words, the power plant's operating problems should start with the fuel and cover every phase right up to the current delivered at the motor, and the motor itself up to the driving pulley.

Generally speaking, one should strive to obtain as high a power factor as is possible at the main panel, which not only makes the generating equipment more efficient, but gives it maximum capacity. A good, intelligent, interested engine-room crew will take care of the equipment in the plant very satisfactorily. A well-designed bonus system for fuel oil burned per units generated is one of the best efficiency schemes that has ever been devised. With modern equipment and good management, the mill power plant should, under present conditions, enable big savings in costs.



MEANS DRAW NEARER FOR BETTER

Design-Protection

A BILL now pending in Congress offers improved means for protection against piracy to the originator of textile designs. Sponsors of the bill report unanimity among the interests involved as to the acceptability of its provisions. This augurs well for its ultimate passage.

In the past the retailer has fought design-protection bills because of the liability laid on him as possible unsuspecting seller of infringing designs. In the current bill that difficulty is taken care of by provision that the retailer is a violator only as affecting goods purchased *after* receiving written notice that a court has granted a restraining order regarding them. It is stipulated that to obtain this immunity the retailer must disclose the source of the alleged infringing goods and must not have acted in collusion with his supplier. Retail support may go a long way toward expediting the passage of the bill.

It is hoped to get the bill before the House and the Senate for vote without public hearings. Over a period of 15 years there have been frequent hearings on similar legislation, and the Committee on Patents, to which the bill was referred, has a wealth of material to draw on in the records of the past without spending time and money to do that job all over again.

The bill carries the title "to provide protection by registration of designs for textiles and other materials," and provides that the Register of Copyrights shall regulate proceedings under the act. It is proposed that two identifying representations of the design be filed, together with sworn statement of the names of applicant and original author. Application must precede commercial use. The Register of Copyrights shall institute a search and if design submitted is original or novel, he shall within seven days issue certificate of registration which shall serve in court as presumptive evidence of originality in the absence of other proof. The registration protects the applicant for five years and costs $3.00.

The creator of designs has no clear nor generally effective way to protect himself under existing agencies. He may get a design patent, but this is cumbersome, expensive, and, even though recently speeded up, still too slow; also the standards for judging originality in a mechanical device are inadequate when applied to a design patent. Copyright, though extended to books, statuary and designs "for works of art," has been ruled as inapplicable to textile designs because of the limiting phrase just quoted. The design registration bureau established through the Silk Association is good as a model, but its acts lack dominating legal authority.

There is now formed and ready to expand when the proposed law is passed, the Design Protective Association. Although largely silk in make-up at present, it is proposed to set up branches for each division of the industry. This body will aid in carrying out the punitive provisions of the law so that pirates who prey on the small man may be as effectively prosecuted as those who prey on the large house.

Directors of this body are Horace B. Cheney, Sol C. Moss, William Menke, Henry E. Stehli, Louis F. Auger, Sylvan Gotschal and Ramsay Peugnet.

Recent cooperation by a large group of silk printers in agreeing not to print any design which had not been registered with the Design Registration Bureau (Silk Association) or patented with U. S. Patent Office, indicates the spread of new feeling of responsibility. It is to the printers' advantage to foster best ethics, for many merchants have lately hesitated to have good designs done on silks because they were so quickly imitated in cheaper lines and they have consequently switched over to other effects. The printer is not only tied into the picture by this element of self-interest, but under the proposed law he will also be liable for damages.

Protection by Contract Clause

In the cotton goods field a movement is under way independent of pending or existing design protection legislation. A group already supported by existing associations plans attack on piracy by making as part of every sales contract a clause binding the buyer "not to copy nor cause to be copied" the pattern of the goods bought. Violation could be attacked as breach of contract, and it is believed that damages, if established, could be collected under the law. The proposed name for this body is "Cooperative Association Against Piracy of Design in Articles of Commerce." It will be run by paid experts and will probably have a design registry together with an advisory bureau relative to registering designs in Washington. If the body had 1000 members with an annual subscription of $100 or $200 each as proposed, it is believed funds will be ample for effective organization.

There is need for cooperation since large firms cannot afford to patent or officially register all of their thousands of designs and the small man probably cannot afford to fight court cases. The proposed contract clause offers an inexpensive weapon and the association an efficient means for bringing pirates to terms. Supporters of this program believe it will almost automatically kill off a great proportion of piracy. It is backed by the Shirting Manufacturers Association and the Textile Converters Association as well as meeting favor in the shoe, hand-bag and wrought iron industries. Steps are being taken slowly, and several months will elapse before further formative steps will be taken. Clarence S. Brown, of 40 Worth St., New York, is chairman of the shirting fabrics committee of the anti-piracy association and its spokesman.

Fashion Data

CLEARING-HOUSE ESTABLISHED BY SILK ASSOCIATION

A NEW policy of service to the silk industry which should help greatly to solve the styling and merchandising problems of 1933, has been adopted by the Silk Association of America. This program, first formulated about 12 months ago and developed gradually throughout the year just closed, has proved itself of such value that plans are under way to apply it on a broader scale for the coming season and thereafter. The aim of the plan is to make the association a clearing-house for fashion information. This clearing-house has a double function: It will serve as a new sales contact for the silk manufacturer by simplifying the selection problem of buyers, and it will keep the broadgoods industry informed of consumer trends in colors, weaves, etc., throughout the country.

The new work is being conducted by the association's Fashion Bureau which was established on a preliminary basis early in 1932. As a major step in testing out the policy, the Fashion Bureau last July held a fabric show at the New York headquarters of the association.

The exhibit comprised several hundred of the new season's lines, which were contributed by nearly 40 manufacturers. It was the first event of the kind ever held by the association, and it proved an immediate success. Attendance was limited to the cutting-up trade, retail buyers, dress buyers, resident buying houses, fashion writers and certain independent stylists. Buyers warmly commended the display as enabling them to get a quick complete review of what the silk industry offered for fall. Since most manufacturers have abandoned formal showings due to business conditions, this was an important advantage.

Encouraged by the success of the show the Fashion Bureau then began planning a second event to display the 1933 fabrics, and this exhibit will be held at association headquarters during the third week of January. These shows promise to become a permanent part of the Fashion Bureau's program; one of the significant rules governing the exhibits is that attendance is strictly limited to the groups which directly or indirectly represent the ultimate consumer. In order to protect manufacturers who contribute their newest fabrics, no representatives of any branch of the silk industry are admitted.

Indications are that the second fabric show will be considerably more extensive than the first, as the manufacturers now are thoroughly convinced of the value of the event. A larger attendance of buyers also is expected. Because the first show was a pioneer project numerous buyers missed attending it, and for some time after the exhibit closed the Bureau continued receiving requests from buyers to view the display.

Following the July show, the next step taken by the Fashion Bureau was to begin compilation of a master swatch book for the silk industry. The more important fabrics displayed at the show served as a nucleus for the swatch book and since then additions have been made regularly; at present this index of the silk industry's leading lines totals 400 samples.

The swatch book is available to buyers only and it offers them a quick way to identify the manufacturer of any important novelty fabric. Each sample is cataloged with the name of the fabric, the date on which it was placed on sale, the name of the manufacturer, and the trade number. While the main purpose of the collection is to give buyers an immediate and comprehensive picture of the significant lines of the current year, the Fashion Bureau staff pointed out that the book will also have historical value to the industry, by enabling buyers to inform themselves in years to come of lines that had been popular previously.

Service to Manufacturers

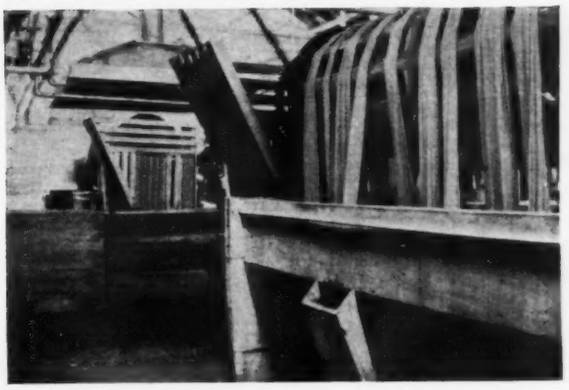
Equally significant is the new service of fashion statistics for broadgoods manufacturers, which is another of the Fashion Bureau's innovations. The chief divisions of this service are: two monthly bulletins giving piece goods sales trends in representative department stores, one for New York and one for cities throughout the country, exclusive of New York; and a monthly chart showing lineage of piece goods advertising by department stores in the principal cities.

The Bureau also sends out reports of fabric trends at Paris openings, and charts of colors and fabrics worn by key people at such outstanding social events as the Metropolitan Opera opening in New York.

These services are designed to help the broadsilk manufacturer both in styling his lines and in planning sales promotion effort. The bulletin on piece goods sales trends in stores shows the monthly percentage of silk sales (a) according to colors and (b) according to weaves; and also indicates the comparative sales volume of the different textile fibers.

The advertising lineage bulletin—which is regarded as particularly important—shows, first, the total silk piece goods advertising by retailers in the 11 principal cities; and, second, the advertising space devoted to wool, velvet, rayon, lace, cotton and metal cloths. This bulletin indicates to manufacturers which cities they should concentrate on in their piece goods sales promotion.

Underlying the whole program of activity, is a determined effort toward establishing closer understanding between the silk manufacturers and the buying groups. Such understanding, Silk Association officials believe, will do much to strengthen the position of the industry as a whole. The services of the Fashion Bureau will be available to the entire silk-consuming market and buyers are invited to consult the Bureau on all problems relating to identification of, or information about fabrics.



WELL-SCOURED FABRICS LIGHTEN BURDEN OF

Knit-Goods Dyer

By E. F. Cleveland

THREE essentials in processing rayon knit goods are adequate scouring of the fabric, careful selection of dyestuffs, and proper arrangement of steam piping in the dye tub. Clean fabrics, suitable dyestuffs, and well-designed equipment will do much to lighten the dyer's burden.

Much has been said both for and against lessening the number of operations by combining one or more processes. The amount of oil and other foreign material present in the gray goods will determine what method to use. Today rayon as received from the manufacturers requires less scouring than heretofore; and where bleaching is necessary preparatory to dyeing, the scouring and bleaching may, as a rule, be carried out in one operation. Olive-oil soap and trisodium phosphate are often employed as scouring agents, the amount of each depending on the condition of the fabric being processed. In addition to these detergents, enough sodium hypochlorite should be added to the bath to give the necessary bleached bottom for the shade desired. This operation should be started cold; and after 10 min. the temperature should be slowly brought to the boil, where it is held for at least 30 min. before the liquor is dropped.

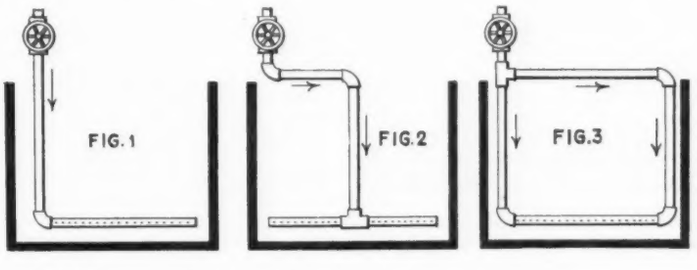
In some mills a one-bath method for scouring, bleaching, and dyeing is being used. This process is particularly favored when exceptionally clean fabric is being processed.

In the dyeing of light shades, such as pink, peach, nile, etc., in order to have each lot match, it is of extreme importance that the bleached bottom always be the same. When scouring and bleaching is done in one bath, experience will teach just what amount of bleach to use, in proportion to the amount of fabric being processed and the volume of the scour, to obtain the same bottom for consistent shades in dyeing.

Use of ordinary substantive dyes on rayon allows the dyer a large range of colors from which to choose. However some knit goods require dyes to overcome barre effect, and the range of level-dyeing rayon dyes is considerably smaller. As mode shades are common for rayon knit goods, the writer finds that it is advisable to use as little glauber salt as possible in the dyeing operation so as to avoid this barre effect.

For use in the scouring and dyeing of rayon knit goods there are on the market sulphonated fatty alcohols which are steadily becoming more popular. These compounds have a number of unique advantages and also enhance the handle of the fabrics. Whether or not the comparatively high price of these products will permit their widespread use on rayon knit goods depends on the savings they make possible in processing time, the better selling qualities which they impart to the fabric, and the amount of the compounds which must be used to obtain satisfactory results.

Of great importance in the dyeing of knit goods is the position of the steam pipes in the dye tub, and the writer knows of several mills where the proper arrangement of steam pipes would result in more even shades than are now obtained. Diagrams of three different types of steam piping are shown. Fig. 1 shows the L type, an arrangement which will produce different temperatures in various parts of the tub, and therefore, uneven shades. Temperatures in a tub fitted with this type of steam pipe type will vary 10° F., or more, depending upon how much the perforations are worn larger at one end because of continued steam pressure through them. Fig. 2 shows the T type; this gives better results than the L type, but yet is not the best. Fig. 3 is the square type which permits the steam to enter the tub from both ends of the perforated pipe. Uniform temperature at both ends of the tub will result from piping so placed, and even dyeings will be more readily obtained.



Ladder Tape . . .

NARROW FABRIC OF UNIQUE CONSTRUCTION

By Edwin J. Gibbons

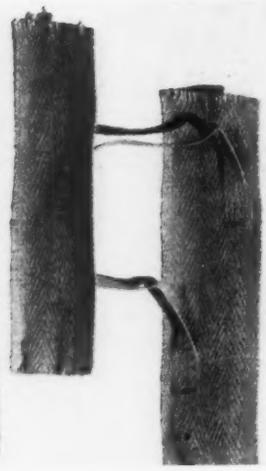


Fig. 1. Ladder tape

LADDER or lattice tape is a special type of narrow fabric usually made on a four-bank-shuttle loom. It is used to support the slats in window or porch screens.

An illustration of ladder tape is given in Fig. 1. The face and back fabrics of this assembly are woven independently, usually in two-up, two-down herringbone twill-weave order, and 1½ in. wide. The two middle tapes are commonly ⅜ in. wide, interlaced in plain-weave order, and are located between the face and back fabrics, one on either side of the center, and about 3/16 in. in from either edge of the face and back fabrics. These two narrow tapes weave independently of each other and also independently of the face or back fabrics, except at the points of stitching.

Stitching occurs once on the face and once on the back in every 3½ in., and is effected by binding the narrow tapes to the face fabric for a space of approximately ½ in. and then to the back fabric for the same space. That is, each narrow tape weaves independently of the face or back for a space of 2½ in., then is bound to the face fabric for ½ in., and then bound to the back fabric for the space of ½ in.—the complete repeat requiring 3½ in.

Binding is done in three-and-one order by raising the middle warp ends over the face picks, or lowering the middle warp ends under the back picks, as the case may be. The binding must be so effected as to disturb as little as possible the fabric to which the narrow tape is being stitched. The two narrow tapes are stitched to the face and back fabrics in a similar manner, but at such points in relation to each other that when the face and back fabrics are drawn apart, the alternate "rungs" of the ladder will be formed by the separate narrow tapes and these rungs will be uniformly spaced.

The order in which it is desirable for the various shuttles to operate is a matter of opinion; but perhaps the best arrangement is face, first middle, second middle, back, back, second middle, first middle, face, or 1, 2, 3, 4, 4, 3, 2, 1. The respective middle shuttle does not interlace with its corresponding warp while that warp is being stitched to the face or back fabric; and if a dobby-head loom is used, and the head is equipped with a repeater, or if a jacquard loom is employed, a saving may be effected by not operating the middle shuttle on on these picks.

All of the face ends, of course, are raised over all of the first-middle, second-middle, and back picks; all of the first-middle warp ends are raised over the second-middle and back picks and lowered under the face picks; all of the second-middle warp ends are raised over the back picks and lowered under the face picks, the first-middle picks, and the second-middle picks, the exceptions being in the case of the two middle warps at the points of binding.

A minimum of twelve harnesses is required to produce this fabric, and these may be apportioned as follows: face fabric on harnesses 1 to 4; back fabric on harnesses 5 to 8, first middle warp on harnesses 9 to 10; and second middle warp on 11 and 12.

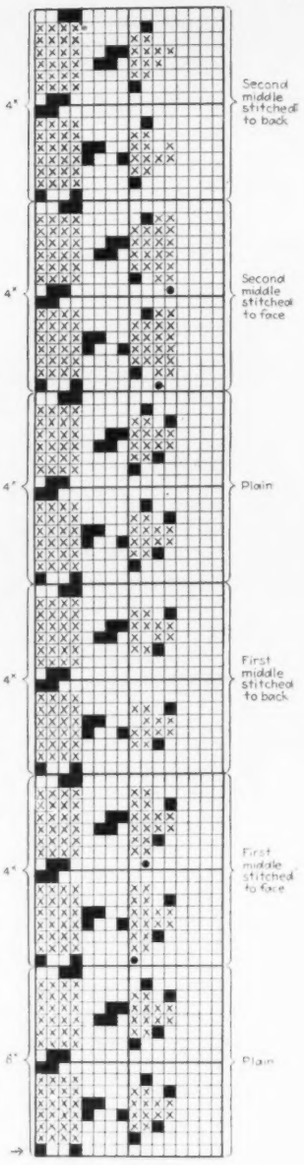


Fig. 2. Chain draft

In the fabric illustrated there are 80 ends in the face warp, 80 ends in the back warp, and 20 ends each in the two middle warps. The arrangement of the ends is as follows: 1 face, 1 back, 8 times; 1 face, 1 back, 1 first-middle warp, 20 times; 1 face, 1 back, 23 times; 1 face, 1 back, 1 first-middle warp, 20 times; 1 face, 1 back 9 times. This produces a uniform effect on both face and back.

After the fabric is woven, the ends of the respective middle warps are severed at the point where the stitching changes immediately from the face fabric to the back fabric. Each portion of the weave repeats on sixteen picks; and if no repeater is used, one repeat of the entire pattern will require 448 picks.

One method of constructing the chain draft is shown in Fig. 2. The arrangement of the picks as shown here is: face, first middle, second middle, back, back, second middle, first middle, face. Harnesses 1 to 4 are assigned to the face ends; harnesses 5 to 8 are reserved for the back ends; harnesses 9 and 10 are for the first-middle warp; and harnesses 11 and 12 are for the second-middle warp. If preferred, harnesses 1, 3, 5, and 7 may carry the face ends; and harnesses 2, 4, 6, and 8 may carry the back ends. In this case the draw would be greatly simplified. Fig. 3 represents a cross-section of the woven fabric before cutting.

Fig. 3. Cross-section of fabric before cutting

HIGH TWIST AND USE OF RAYON

ADD TO *Throwsters' Problems*

THE popularity of crepes has increased the frequency of certain difficulties encountered in the throwing operation. Correct twist is more essential than ever before, since the appearance of a crepe fabric is changed markedly by a variation in twist which would pass unnoticed in many other constructions.

In addition to the usual causes of uneven twist, such as loose bands, etc., there is another which crops up more frequently when twisting some of the heavier yarns in demand today. Due to the heavy yarn and the high twist, there is considerable tension on the yarn during twisting, and unless the take-up bobbin is firmly seated, the drag will cause it to slip. As the take-up is thus reduced, while the delivery remains the same, excessive twist is imparted. The result is that the diameter of the yarn is decreased and a streak will appear in the woven fabric. Inspection of the frames and the avoidance of too high a tension are recommended to obviate such a difficulty.

While a number of throwsters have specialized in handling synthetic yarns for some time, the vastly increased demand in recent months, for crepe fabrics constructed with rayon or acetate yarns has resulted in rayon throwing becoming part and parcel of the silk-throwing industry, and many manufacturers have been presented with the difficulties peculiar to the handling of rayon for the first time.

Due to its distinctive properties, rayon presents difficulties not encountered in the throwing of silk. An interesting case was investigated recently by the Throwsters Research Institute. A weaver advanced a claim of $2400 against a throwster for defective cloth. Fig. 1 is an illustration of the fabric in question, showing a marked change in appearance at a certain point, filling-wise. When the filling was picked out on either side of the line of demarcation, both yarns sized the same and had the same twist. It was not until a laboratory test disclosed the fact that one yarn was 200 denier 30 filament, and the other 200 denier 75 filament, that the defect was recognized as mixed filling. This case illustrates the possibility of a silk throwster looking for defects common to silk and failing to think in terms of rayon yarns.

Another property of rayon which must be taken into consideration is its greater propensity to stretch, when compared with silk, particularly under certain atmospheric conditions. When the humidity is high, or when the yarn is damp, and excessive tension is applied during the quilling or warping operation, a stretch of 10% in rayon crepe yarn is not unheard of. This means that a yarn quilled under unfavorable conditions of moisture will start with 50 turns per inch and end with 45 turns per inch; and a variation of 5 turns is sufficient to cause a weaving defect. While this may be said to be primarily a problem for the weaver, the throwster may hear about it in terms of a claim for slack twist, and he must be prepared for the eventuality. A device for measuring the tension is useful in pointing out excessive strain and in securing uniformity of tension. It is to cover the different properties of rayon, as compared with silk, that the Throwsters Research Institute has asked the Silk Association of America to set up rules governing the throwing of rayon.

Fig. 1—Fabric defect due to mixed filling

Some peculiar fabric defects have shown up in weaving rayon crepe yarns. In one case, despite the fact that the twist was correct, there was practically no crepe effect in the fabric. Laboratory investigation, under the direction of the Institute, yielded no results until a photomicrograph was taken of a cross-section of an individual filament. The photograph showed dark spots in the filament. Further investigation is being carried on to determine whether these spots are due to air holes or to pigments, but the conclusion to date is that the filament collapsed in the twisting operation, much as a hollow pipe will collapse, and thus lost practically all the elasticity necessary to produce a crepe effect in the fabric.

Too much stress cannot be placed on keeping separate various lots of yarn. The weaver has learned, and the throwster along with him, that it is not good policy to mix crepe yarns thrown in different establishments, even though of the same description, owing to the manner in which the popular weaves accentuate the slightest variation. This problem has always been present, although to a lesser extent, but at the present time the throwster should use greater vigilance than ever to prevent any mixing of yarns in his own plant.

The Throwsters Research Institute has done valuable work in investigating the causes of defects, such as those enumerated, and in bringing the precision of the laboratory to bear in the arbitration of disputes between throwsters and weavers. The Institute has determined, for example, that dyes will not properly penetrate rayon yarn containing more than 55 turns per inch. Not the least valuable part of the organization's work has been in the registration of claims. Just as there is always the possibility of mixing yarns, there is also the possibility of a claim being made against the wrong throwster, and of a claim for the same defect being made against more than one throwster. The Institute is building up a fund of information, which should be of considerable value to the industry, on the frequency and causes of certain defects.

Cost-Finding System

AT MINNEAPOLIS KNITTING WORKS TAKES GUESSWORK OUT OF MANUFACTURING

By V. J. Gregory

IN these hazardous days of manufacture, managements realize the value of accurate cost accounting. A slight error in judgment or a faulty calculation may result in a deficit. And deficits are not pleasant to contemplate. The standard cost system evolved by C. M. Osborne, accountant, of the Minneapolis Knitting Works, Minneapolis, Minn., and tested over a period of eight years, has proved accurate in determining costs in the manufacture of knitted garments.

The cost system operates in such a manner that the inventory of goods in process may be checked at the end of each month to a very certain degree of accuracy. In addition, the records show at every accounting period the actual cost of materials charged to the plant and the same items figured at standard costs. The small degree of variance attests to the accuracy and indispensability of the standard cost system.

The unit employed in the system is twelve. Costs are figured on every dozen articles of manufacture. This is done monthly at the end of every accounting period. Under this system the inventory of merchandise in process is kept down to the minimum.

Materials are checked by weight and by value. Standard weight is defined as the number of square inches per pattern multiplied by the weight of material per square inch. The standard weight multiplied by the value equals the standard material value. This is the figure which is used in arriving at the manufacturing cost.

Actual charges to the plant are made up of the following factors: overhead, material, trimmings, and labor. Compared with this is the prime cost, which is made up of material, trimmings, labor, and overhead at standard. It has been found that there is only a small variance between the items making up the actual costs and those making up the prime costs.

In calculating the actual material cut, a ticket (Fig. 1) follows the garment through the various manufacturing operations. The ticket shows the items which the cutter and the knitter check when a garment passes through their hands. The knitter checks the machine number, size, roll number, weight, date, name of knitter, and style. The cutter checks the style, order number, bodies cut, gores cut, and sleeves cut. This ticket then goes to the accounting department for comparison with the standard material factors.

In calculating the labor standard the various operations are checked on a work ticket (Fig. 2). The Minneapolis Knitting Works produces approximately 500 styles of garments, the various styles requiring from a minimum of 10 to a maximum of 33 labor operations. The median time of each operation is shown on the work ticket and the operator's clock number is entered on the ticket by the employee. Thus the management is enabled to control and check inefficient work.

The accounting system is simple. On a single sheet of paper—the cost-record sheet—is a summary for the year. This record (Fig. 3) enables the management, at all times, to note the progress of its establishment.

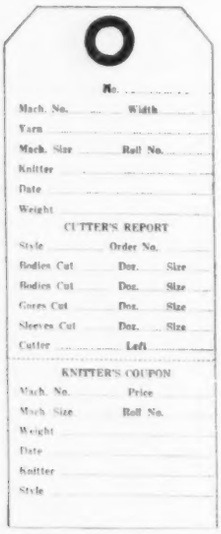


Fig. 1. This ticket follows garment through cutting operation. Cutter and knitter check items.

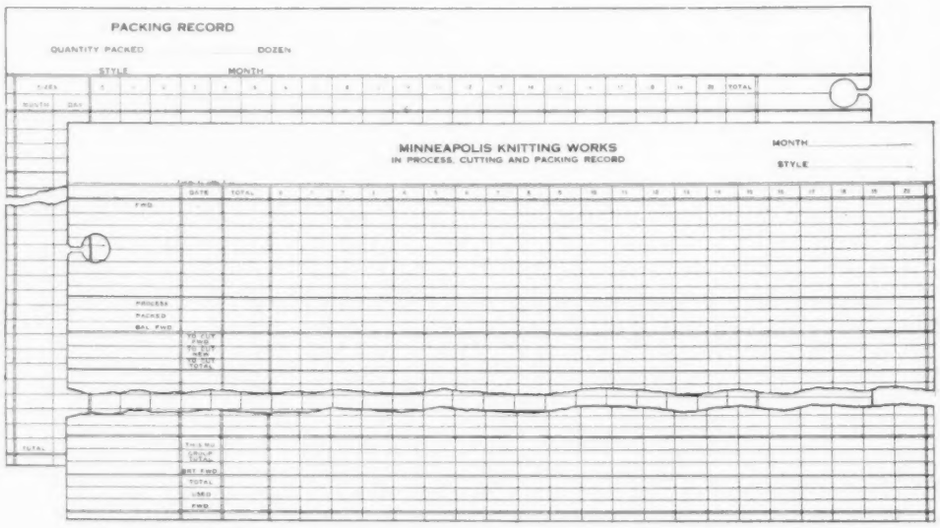


Fig. 4. This sheet enables the plant superintendent to determine instantly whether he can fill a rush order and how long it will take him to complete the order. The record is a time saver, as the superintendent is not required to wade through numerous records to learn what styles he has in stock.

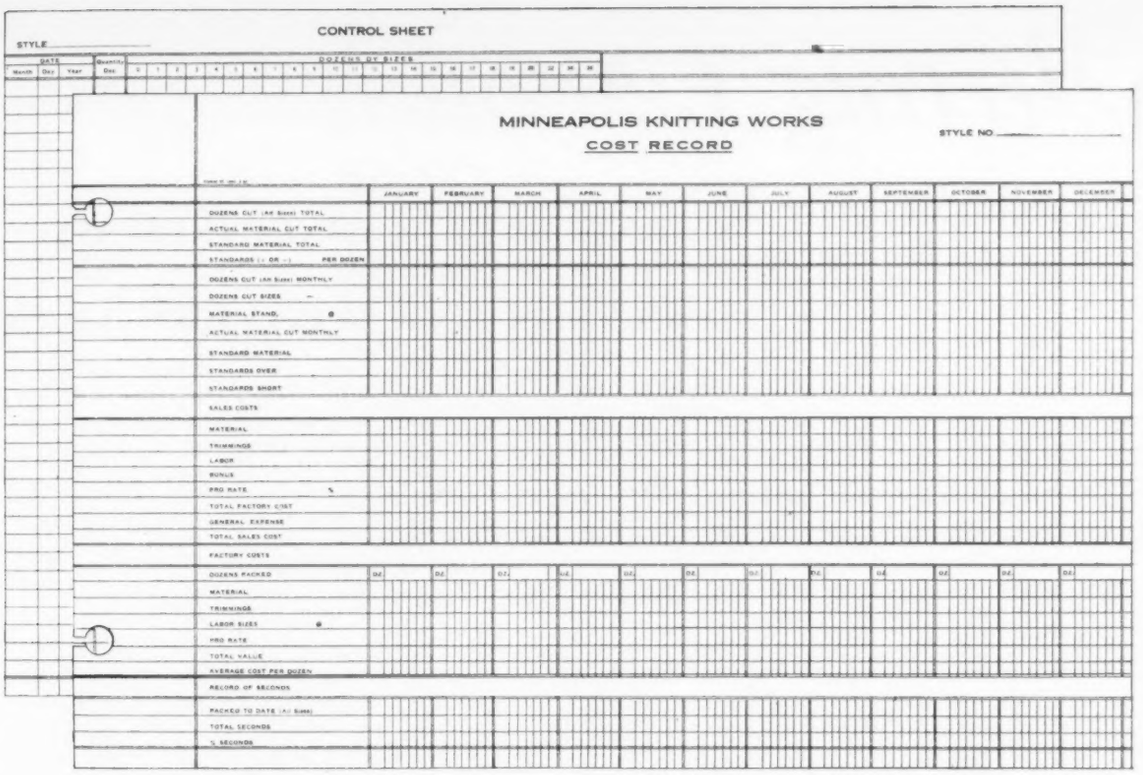


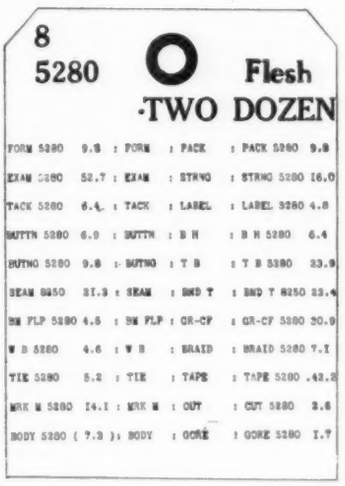
Fig. 3. The cost record sheet is the key to the entire accounting system. On this single sheet of paper is a summary of the work of the company over a period of twelve months. The management is enabled to note and compare the progress of its plant at all times.

On the cost record sheet 31 items make up 5 main divisions of accounting. The first section, composed of four items, is used to check, at any accounting period, variations between the actual and standard factors. Entries are made of total dozens cut, total of actual material cut, standard material total, and the standards (plus or minus) per dozen.

The second section—composed of dozens cut (all sizes) monthly, dozens cut sizes, material standards, actual material cut monthly, standard material, standards over, and standards short—gives the management a monthly check over actual and standard operations.

In the third section the standard total manufacturing cost is made up of material at standard, trimmings at standard, labor at standard, and overhead at standard. The total standard manufacturing cost plus the general expense equals the total standard sales cost.

In the fourth section is entered monthly the dozens of garments packed by style number. In arriving at the material value, the figure denoting the dozens packed, as entered in the fourth section, is mpltiplied by the figure denoting the standard material value in the third section. The same operation is followed for trimmings and labor. The payroll is definitely tied up with the labor standard for dozens packed monthly. The overhead cost per total dozens packed is arrived at by applying a percentage factor against productive labor. These four items of material, trimmings, labor, and overhead give the total standard cost calue. This total divided by the dozens packed gives the cost per dozen.


8
5280
O
Flesh
TWO DOZEN

FORM	5280	9.8	FORM	PACK	PACK	5280	9.8
EXAM	5280	52.7	EXAM	STRNG	STRNG	5280	16.0
TACK	5280	6.4	TACK	LABEL	LABEL	5280	4.8
BUTTN	5280	6.9	BUTTN	B H	B H	5280	6.4
BUTNG	5280	9.8	BUTNG	T B	T B	5280	23.9
SEAM	5250	81.3	SEAM	BND T	BND T	5250	23.4
BN FLP	5280	4.5	BN FLP	GR-CF	GR-CF	5280	20.9
W B	5280	4.6	W B	BRAID	BRAID	5280	7.1
TIE	5280	5.2	TIE	TAPE	TAPE	5280	42.2
MRK M	5280	14.1	MRK M	CUT	CUT	5280	2.6
BODY	5280	(7.3)	BODY	GORE	GORE	5280	1.7

Fig. 2. This work ticket enables the management to check and control inefficient work. The median time of each operation is shown.

The control sheet on the opposite side of the cost record sheet shows instantly the quantity, in dozens, of the various sizes of garments entered in process. The difference between this figure and the completed cost gives the amount of dozens still in the plant.

The plant superintendent, desiring information regarding garments under production or packed ready for shipment, goes to the "In Process, Cutting, and Packing Records." This sheet (Fig. 4) shows the style, size, and quantity of garments packed, in process, and cut. The superintendent knows instantly whether he can fill a rush order and how long it will take him to complete an order. He does not have to wade through numerous records or through warehouses to learn what he has. The record is a time saver.

Nothing is left to chance. There is no guesswork. Every operation is calculated under this standard cost system.

The accountant figures the cost of every dozen of articles manufactured in the plant. He also has charge of the payroll containing the names of between 300 and 400 employees. This stupendous amount of clerical work is accomplished with the assistance of but five clerks, and a close analysis is made to avoid duplications in every department of the cost-accounting system.

Selecting Cotton

AMONG TOPICS DISCUSSED BY SPINNERS AND WEAVERS AT SPRAY

◆ *The kinds of cotton most satisfactory for sheetings, print cloths, denims, and towels were discussed at Spray by members of the Southern Textile Association. Other subjects included handling irregular staple, using large cans under small coilers, variable-speed spinning, long draft, twist, depth of slasher immersion roll, humidity for weaving light and heavy goods in same room, and loom let-offs for rayon and silk.*

THE spinning characteristics of cotton, together with mill problems in carding, spinning and weaving, were discussed at the meeting of the North Carolina-Virginia Division of the Southern Textile Association, held at Spray, N. C., last month. Culver Batson, division manager of the Consolidated Textile Corp., Lynchburg, Va., general chairman of the division, was in charge of the meeting.

The new executive committee of the division was elected, as follows: L. V. Andrews, Martinsville, Va.; D. F. Short, of Lynchburg; J. V. McCombs, Franklinville, N. C.; E. D. Hoehl and W. F. Humbert, of Spray; and N. W. Bales, of High Point, N. C.

The essential characteristics of cotton in relation to different fabrics were discussed by W. D. Clark, of Erlanger Cotton Mills, Lexington, N. C. Three factors of primary consideration in judging the acceptability of cotton for manufacturing purposes were said to be: (1) proper handling in the picking and ginning stages, (2) character, and (3) grade. Every mill, according to Mr. Clark, should have some means of determining the grade and staple of cotton.

In discussing the kinds of cotton most suitable for specific fabrics, the speaker gave the following information, which is published in summary form:

Sheeting: Middling or strict middling, $\frac{15}{16}$-in. staple, entirely satisfactory. Strict middling is preferred if the mill is selling a critical trade and has a reputation built on very good cleaning. If the mill has good cleaning equipment, on the other hand, middling cotton is good enough. Would not recommend going below middling grade.

Print Cloths: Middling and better cotton, with full 1 to $1\frac{1}{16}$-in. staple, is recommended for print-cloth numbers. Some mills use strict low middling, 1-in. cotton; but this will give more neps and specks in the fabric. Western cotton usually has more neps, though a higher breaking strength than cotton grown east of the Mississippi River. Slower carding will often reduce the number of neps to a minimum.

Denims and Towels: In the case of these and other fabrics in which dyed cotton is used, the grade of cotton may be lowered. Gray or blue cotton may be used for dark-colored work. Trash and other foreign matter, such as sand, are often found in really blue cotton, however. Tinged cotton will dye light colors satisfactorily and is preferred to blue cotton. Denim does not require high-grade cotton, nor does it require a good staple; but if it is possible to secure good staple, the mill will have better running work. Some mills use strips and low-grade cotton in towels, because the fabric will be bleached and these materials reduce costs considerably. The cheaper the price of cotton, the more desirable it is to use higher grades, because the difference between middling and strict low middling, for instance, is so narrow that the prices secured for the goods would probably not offset the difference in waste that the mill gets in using low-grade cotton.

Carding and Spinning

The discussion was led by L. V. Andrews, superintendent of the Martinsville (Va.) Cotton Mills. Some mills reported more trouble with cotton from certain localities this year because of uneven staple and stated that it had been necessary to change roll settings. It was pointed out that Carolina-grown cotton this year is not up to the quality of last year's crop, and that there has been a large amount of irregular (long and short) fiber in the same bale. This was said to be particularly true in Carolina cotton of 1-in. and better staple. Western cotton, on the other hand, seems to be just as good this year as in 1931.

The difficulty from irregular staple was overcome in one mill by opening up the top rolls from $\frac{1}{16}$ to $\frac{3}{16}$ in. Another mill was said to have inserted more twist in spinning to take care of the greater percentage of short fibers. Still another mill had to insert more twist in the card-room processes.

One member described a method by which drawing frames with 10-in. coiler heads were made to fill up 12-in. cans. After the correct speed of the coiler was determined, it was necessary to experiment with the positions of the can until the best location was found—$1\frac{3}{4}$ in. to the front. The coiler shaft was slowed down, thus throwing the sliver out. While this arrangement was not claimed to be perfect, it was said that the cans fill up very well and there is no trouble from breaking back.

Variable-speed spinning drives were discussed briefly.

Mr. Batson declared that he believed in the principle but, while he was not entirely satisfied about its feasibility on old frames, he felt that every mill should spend the money for an experimental installation and test it thoroughly. It was pointed out that nearly all the installations of variable-speed drives have been on existing frames. H. H. Willis, director of the Clemson College (S.C.) Textile School, in reply to a question from the floor, stated that if the variable-speed drive works on a new frame, it will work on an old one, provided the old frame starts at a speed within its limits. Several members were of the opinion that the frame itself must be in first-class mechanical condition if the variable-speed drive is to prove efficient.

CULVER BATSON, who presided at the Spray meeting of S.T.A. divisional group, expressed belief that every mill should test out variable-speed spinning with an experimental installation.

In considering the progress made in long-draft spinning, one member stated that experiments with a 35-spindle unit of improved long draft, making 21½s warp yarn on 2¼-in. ring, 8-in. bobbin, filling wind, from single intermediate roving (two hank), had been very successful. Good results were obtained with drafts from 18 to 24.

A 30,000-spindle sheeting mill that had been running 20 years with a draft of 7.75 on single roving, according to Mr. McCombs, is today drafting 18 to 19 with double roving, spinning 18s to 22s yarn on old frames at the same speed in effect before the change, which is above standard, and getting a breaking strength of 5 to 8 lb. better on its yarn. This mill had plenty of cards and was able to heavy up on roving, he said.

Several members had tried twist multipliers below standard on warp yarn. W. J. Jennings, of Minneola Mfg. Co., Gibsonville, N. C., said that if the mill is provided with good cotton, less than standard twist is found to be very satisfactory. At his mill, which makes flannels, twist multipliers of 4.50 and 4.25 are used, and less than standard is run all the time.

The results of a five-day test, presented by another member, showed breaking strength on yarn, warp wind, for various twist multipliers, as follows:

Yarn Numbers	Twist Multiplier	Breaking Strength
29.85	4.77	59.3 lb.
30.21	4.60	58.1
30.10	4.44	58.4

Mr. Batson was of the opinion that the best way to determine the proper twist mutiplier is to consider the cotton, the character and length of staple, and to adjust the twist to the goods being made, to the loom stoppage, and to the production of the loom. While one thought expressed was that it is better to hold to standard twist multiple, because anything below that reduces elasticity and has a bad effect upon weaving, another was that any loss in elasticity is offset by better size penetration in slashing.

Warp preparation and weaving discussion was led by D. F. Short, of the Consolidated Textile Corp., Lynchburg, Va. There was a difference of opinion as to the desirability of running the immersion roller in the size vat as deep as it will go. One member stated that he does not run the immersion roll at the bottom, because of the variety of beams (both wood and iron) used in his mill, and he does not want to risk possible breaks in the warp. A. J. Matthews, overseer of weaving, Carolina Cotton & Woolen Mills Co., Bedspread Mill, Leaksville, N. C., stated that if the immersion roller is run as low as possible, the size will have more time to penetrate and, with no automatic apparatus to keep the size at a constant level, there is less danger of trouble due to the size getting down too low. It was pointed out that this practice, contrary to the old idea, has no noticeable tendency to cause the yarn to roll up and produce an uneven sheet on the cylinders.

Humidity and temperature in running both heavy- and light-sley weaving in the same room was considered. The grouping of light constructions in one section of the room, and the heavy work in another, was suggested. Chairman Short said that he tries to size one construction a little heavier than the other and then maintain the relative humidity that is most suitable for the hard weave. In his case he runs the proper relative humidity for broadcloth and sizes the sheeting warps to compensate for this difference.

In weaving broadcloth constructions as heavy as 160, or heavier, relative humidity of 82 to 86, to give about 12.5% moisture regain, was suggested. Harness setting 2¼ in. from fell of the cloth was said to give a good face on broadcloth. If set any closer, it was found that the shed would close on the shuttle.

Loom Let-offs

The best type of let-off for rayon and silk weaving, according to experiments in one plant, was found to be a rope let-off, using graphite on the ropes. This keeps the floor soiled, however, and it is necessary to watch humidity in the room carefully, usually running around 70 to 72% relative humidity. If it runs any higher than 72, the ropes often stick and a bad place in the cloth will result. Another member felt that some type of positive let-off is needed for rayon weaving.

An address on "Boiler Efficiency, Steam Turbines, and Heating Systems" was presented by L. L. Vaughan, mechanical engineer, of N. C. State College, Raleigh. He declared that boiler efficiency depends more upon combustion conditions than anything else, and urged the plan of working more toward a combination of power, process steam, and heating systems. Stoker plants, he said, not only eliminate labor costs, but also permit greater operating efficiency.

Worsted Reeling

CALCULATIONS FOR PRODUCTION STANDARDS AND PIECE RATES

By Morris C. Bishop

◆ *Mr. Bishop is something of a pioneer. Tribute to the originality of his writings was shown by the many requests for extra copies of his articles which were received during 1930 and 1931, when five were published in* TEXTILE WORLD. *This new article, like the others, discusses calculations for production and piece rates—this time in reeling. Although Mr. Bishop has based his formulas and examples on the worsted system, it appears that at least his procedure in developing them can readily be adapted to the reeling of other yarns.*

WHILE reeling is performed on a relatively simple machine, it is subject to many variables which make it a difficult operation for which to calculate production standards and piece rates. For that reason a solution of this problem is presented herein.

In examining the time-study characteristics of the operation, Table I is set up.

In case two or more skeins are reeled from a bobbin, the cycle repeats at 10 and begins with element 2 until the bobbins are run out. In case no intermediate lease is used, element 4 disappears and there is only one running period. The other elemental times are unaffected.

An examination of the elements listed in Table I discloses that there are three general classifications; namely, those elements which occur each doff, those elements which occur every time a new set of bobbins is set up, and those elements having reference to the duration of time which the swift is reeling. These elements are assembled and classified in Table II.

The swift running time per doff will be subject to considerable variation unless automatic stop motions are used. Such equipment, however, will only partially attain the objective of uniform skein weights since the last doff from a set of bobbins will necessarily have to be the residue of yarn left from the previous doff. Because of this, the most simple and direct method of computing the swift running time is to find the total running time for all the doffs of the set and divide this time by the number of doffs, according to the following:

Let J = Skeins per bobbin..
Sc = Circumference of swift in yards.
R = R.p.m. of swift.
Bw = Net weight of yarn on average bobbin in pounds.
Y = Delivery rate to swift in yards per minute ($Sc \times R$).
C = Total running time of swift per bobbin.
P = Time to unwind a bobbin.

$$\text{Then } C = \frac{\text{Bobbin yardage}}{Sc \times R} = \frac{\text{Bobbin yardage}}{Y}$$

The bobbin yardage bears a mathematical relation to the count and weight of the yarn on the bobbin and may be expressed as follows:

$$\text{Bobbin yardage} = 560 \times \text{Count} \times Bw$$

$$\text{Therefore} \quad P = \frac{560 \times \text{Count} \times Bw}{Y}$$

From the foregoing it is possible to set up an expression representing the time required to reel a set of bobbins thus:

$$\text{Std. time per set of bobbins} = 2.20 + (13.00 \times J) + \frac{560 \times \text{Count} \times Bw}{Y}$$

Where double or intermediate leasing is used, the expression becomes:

$$\text{Std. time per set of bobbins} = 2.20 + (17.00 \times J) + \frac{560 \times \text{Count} \times Bw}{Y}$$

From this expression the average time per doff may be found by dividing each portion of the expression by J, thus:

$$\text{Average time per doff} = 13 + \frac{2.20}{J} + \frac{560 \times \text{Count} \times Bw}{J \times Y}$$

Where double or intermediate leasing is used, the expression becomes:

$$\text{Average time per doff} = 17 + \frac{2.2}{J} + \frac{560 \times \text{Count} \times Bw}{J \times Y}$$

It should be remembered in using J in the above expression that it shall be a whole number at all times, such as 1, 2, 3, or 4, since we cannot have a fractional doff whether a doff be of short weight or not.

Assuming that the operator's wages are to be 30c. an hour or ½c. per minute in attaining standard production, the expression for piece rates may be found by multiplying the time constants in the time expression by a half, giving the following expression:

$$\text{Piece rate per doff in cents} = 6.5 + \frac{1.1}{J} + \frac{280 \times \text{Count} \times Bw}{J \times Y}$$

The above expression applies to single leasing. If an intermediate lease is used, it will take four minutes more per doff and the piece rate will be 2c. a doff higher than for single leasing.

This basis of wage payment is selected because it is much more simple to use than a poundage basis and is to a certain degree more satisfactory to the reeling operator. The chief disadvantage of this system is that it does not show the cost per pound, but this may be found as follows:

$$\text{Pounds per doff} = \frac{Bw \times 50}{J}$$

$$\text{Standard hourly production} = \frac{Bw \times 50 \times 60}{J \times \text{Av. min. per doff}}$$

Therefore, standard cost in cents per lb. $= \dfrac{J \times \text{Piece Rate}}{50 \times Bw}$

The latter expression may be used if it is desirable to compute the piece rate on a poundage basis.

In computing a system of piece rates to cover the complete range of reeling conditions, the following variable factors appear:

1. R.p.m. of swift.
2. Circumference of swift.
3. Bobbin weight.
4. Doffs per set of bobbins.
5. Count of yarn.
6. Leasing methods.
7. Minor variations in time required to lease and band, as may be caused by count and color of yarn under poor lighting. Under these conditions, a fine dark-colored yarn will take more time to handle than a light-colored coarse yarn.

Simple chart representations covering these variables are impossible, but the problem may be somewhat simplified by setting up a table to cover the usual range of variations of the first two variables, as they appear in the expression $280 \div R \times Sc$ (Table III).

Other swift settings and speeds may be treated by extensions of the above table.

If we have a condition in which the swift is set for a 54-in. skein and turns at 115 r.p.m., the constant to be used would be 1.624, which, when substituted in the piece-rate expression, would give for single lease:

$$\text{Piece rate per doff} = 6.5 + \frac{1.1}{J} + \frac{1.624 \times \text{Count} \times Bw}{J}$$

Carrying the application further to a specific condition, let us take a case where 2/20s are to be reeled from bobbins weighing 42 lb. per hundred ($Bw = 0.42$ lb.) and where two skeins are to be made from each bobbin. The skein weight in this case is an average of $3\frac{1}{3}$ oz. By substituting the values given above, the piece-rate expression appears thus:

$$\text{Piece rate per doff} = 6.5 + \frac{1.1}{2} + \frac{1.624 \times 10 \times .42}{2}$$

$$= 6.5 + .55 + 3.4$$

$$= 10.45 \text{ c. per doff of 50 skeins.}$$

$$\text{Cost per pound} = \frac{10.45 \times 2}{50 \times .42} = 1 \text{ c.}$$

If three skeins are to be made from a bobbin with the same conditions, the piece rate per doff would be:

$$\text{Piece rate} = 6.5 + \frac{1.1}{3} + \frac{1.624 \times 10 \times .42}{3}$$

$$= 6.5 + .37 + 2.27$$

$$= 9.14 \text{ c. a doff.}$$

$$\text{Cost per pound} = \frac{9.14 \times 3}{50 \times .42} = 1.3 \text{ c.}$$

The skein weight in this case would be $2\frac{1}{4}$ oz. In comparing the costs in the two instances given, the costs are $\frac{1}{3}$c. lower per pound for $3\frac{1}{3}$-oz. skeins than when $2\frac{1}{4}$-oz. skeins are reeled.

Breakage may occur in reeling certain novelty yarns, in which case the swift will have to be stopped and the ends pieced together. Under such circumstances, the losses due to breakage will have to be evaluated by time study and a suitable allowance added to the piece rate to cover such a contingency.

*

Table I

Conditions: Intermediate leasing, 50 skeins per doff, 1 skein per twister bobbin.

Element Number	Description of Element	Standard Time in Minutes
1	Set up full set of (50) twister bobbins...	.80
2	Tie down 50 ends on swift.....	2.50
3	First running period of swift.....	Variable
4	Intermediate lease.....	4.00
5	Second running period of swift.....	Variable
6	Tie finish leases.....	7.00
7	Tie bands.....	2.50
8	Doff.....	.50
9	Bundle skeins and carry to finished stock location.....	.30
10	Reset swift.....	.20
11	Remove run-out bobbins.....	1.40

*

Table II

Elements in Classification A, or those occurring each doff:

No.	Element	Standard Times: Single Lease	Standard Times: Double Lease
2	Tie down ends.....	2.50	2.50
4	Intermediate lease.....	....	4.00
6	Finish lease.....	7.00	7.00
7	Tie bands.....	2.50	2.50
8	Doff.....	.50	.50
9	Bundle and store.....	.30	.30
10	Reset swift.....	.20	.20
	Totals, minutes.....	13.00	17.00

Elements in Classification B, or those occurring once each set-up of bobbins:

No.	Element	Standard time
1	Set up a full set of twister bobbins....	.80
11	Remove run-out bobbins.....	1.40
	Total, minutes.....	2.20

Elements in Classification C, or swift running time: *See text.*

*

Table III

Swift R.P.M.	Values of 280/Y for Different Swift Settings: 72-In.	54-In.
125	1.120	1.493
120	1.167	1.557
115	1.218	1.624
110	1.275	1.695
105	1.333	1.776
100	1.400	1.865
95	1.435	1.963
90	1.515	2.073

Underwear Styles

FOR 1933 CENTER ON NOVELTY FABRIC EFFECTS

NOVELTY effects in fabric are the keynote of the new year in knitted underwear, and manufacturers are exercising all possible ingenuity to develop original and distinctive types of stitch. Faced with a hesitant buying tone, they will rely more than ever on attractive styling to build business. As usual where fashion is high-lighted, this effort is concentrated on women's apparel, and in this division indications are that 1933 will bring forth numerous decidedly different and pleasing new fabrics.

The popularity of the waffle-stitch during recent seasons has convinced knitters of the advisability of achieving further variations in stitch. The year just closed brought some significant developments along this line, but the industry regards these as merely preliminary. Color is less adaptable as a style resource here than in the outerwear divisions, being restricted to a group of pastel shades and a few mixtures. Some firms have been successful in building underwear volume on color interest alone, but generally speaking vari-colored step-ins, bandeaux or panties do not sell well.

The new lines show conservative use of color in women's underwear. Two-tone effects are favored and sometimes two contrasting colors are used. However, the industry seems pretty well convinced now that color styling is unsatisfactory as a sales stimulus, and is putting the job of developing new fashion appeal squarely on the shoulders of the fabric technicians.

Consistent with this policy, various new combinations of stitches are being developed. Stripes are an important part of the spring trend and will be much in evidence. Rough crepe effects, so popular last year, will probably continue a leader, with interest centering on novelties.

Numerous other aspects of the underwear situation warrant attention at this time. One of the most striking and significant of these is the tendency of mills toward further diversification of product. With market conditions so unsatisfactory, many companies are branching into new knitwear lines, hoping in this way to catch up the slack in their established fields and reduce production costs. Bathing-suits were added to the lines of several leading underwear firms last year, and this has been followed recently by the addition of foundation garments of the corset type. The combining of foundation garment manufacture with underwear is viewed by the industry as particularly significant. In the apparel sense, it is a perfectly logical tie-up, but early reports indicate that the corset industry is planning a real fight to hold its business.

Underwear mills are experimenting on many new knitted fabrics, most of which are being kept secret; one project about which the industry is curious, though somewhat skeptical, calls for a combination of three fibers—wool, cotton and rayon. Little is known of this development, as yet. Rather more definite are the prospects for women's garments made from rabbit hair mixtures. Mills have been notably successful of late in combining rabbit hair with other yarns, and the new year may bring both a wider range of these lines and an increased demand.

One underwear manufacturer stated he expected to see rabbit-hair yarn in all chief novelty lines of women's quality underwear before summer. He did not look for volume business, pointing out that the high cost of production kept this line out of range of the average consumer. However, the rabbit-hair merchandise ties in well with the current novelty range, and should enjoy active movement in the more specialized markets. Apart from the price handicap, this underwear has been very well received; the smooth feel, silkiness, elasticity and warmth make the yarn particularly satisfactory for fabrics worn next to the body.

The prospects for rabbit-hair underwear for men are uncertain. Here the mills face the same problem which arose when rayon first was used in making men's underwear; namely, that it is too feminine in hand and appearance. However, educational promotion has overcome this objection in rayon and a similar effort on behalf of rabbit-hair garments might be equally successful.

In men's underwear generally, the trend is toward white lightweight two-piece suits. End-year sales showed a decline in the call for colors and manufacturers look for this tendency to continue. It is significant that, despite the problem of inferior rayon underwear, the sales of synthetic-fiber garments to men has held up quite well.

The use of spun silk in men's underwear is still limited to a small specialty market and there is little likelihood of volume business at this end. Spun silk undershirts made their first appearance last spring, arousing much discussion and some premature worry among manufacturers of rayon and cotton underwear. The price of the spun silk garment restricts its sales, however, since it retails usually at $1.00. Inasmuch as the consumer can get good quality rayon garments at considerably less, knitters see little prospect of any early big volume.

While limited at present, spun silk underwear deserves watching, and the same applies to another infant of the industry—spun rayon underwear. Inquiry in the staple rayon field discloses that not more than 10% of domestic staple goes into underwear at present, but this outlet is regarded as having possibilities for the future.

To sum up, knitted underwear manufacturers regard 1933 prospects as very promising. The heavyweight division in particular is in good position, thanks to its wise policy of delaying openings last summer. Continuation of curtailment program would help toward profits.

Degumming Agents . . .

SOAPS AND BOIL-OFF OILS

UNTIL recently, the degumming or boiling-off of silk was carried out solely by empirical methods. In the last few years, however, investigations made by Mosher, Tsunokaye, and others have disclosed a number of important facts concerning the usual degumming processes and have led to the discovery of other methods which merit further study. In commercial practice solutions either of soap or one of the various types of boil-off oils are usually employed for silk degumming; and this article will consider only these two classes of degumming agents.

In the past, experience was the sole criterion as to the type of soap best suited to boiling-off of silk, but studies made by the textile-research division of one of the larger soap companies indicate that the following are the characteristics desirable in a soap for silk degumming: (1) low rate of hydrolysis; (2) high degree of solubility; (3) high degree of rinsibility; (4) ability to form a stable fatty-acid emulsion in the presence of acids; (5) stability toward oxidation and rancidity.

Seemingly, the low-titre soaps, such as those made from olive oil and red oil, best satisfy the requirements listed above. On the other hand, the high-titre soaps find considerable application; and while many authorities criticize their use, the fact remains, as Roberts points out, that mills which employ them are making usable and salable merchandise.

Potassium soaps of low-titre oils (often with the addition of a solvent) are employed to a considerable extent for boiling off silk, particularly silk hosiery. So far as is known, there has been nothing published as to the efficiency of the potassium soaps and the corresponding sodium compounds.

Factors of major importance in silk degumming are: (1) hydrogen ion concentration of bath; (2) proportion of soap to silk; (3) temperature, and (4) time. It has been established that best results are obtained with a bath having a pH value of 9.5 to 10.5. Below pH 9.5 little degumming takes place, and above pH 10.5 the silk fibroin is damaged. It has been shown also that the proportion of soap to silk must be relatively high in order to maintain a pH of at least 9.5 throughout the operation; likewise the higher the proportion of soap —within certain limits—the more rapid the degumming action. While about 37.5% of anhydrous soap based on the weight of silk is theoretically desirable, for purposes of economy, the proportion considered satisfactory in good commercial practice is in the neighborhood of 18 to 23%.

Comparatively little removal of the sericin is accomplished below a temperature of 180° F., but above this point the increase in sericin solubility is rapid. For this reason, the temperature should be held as near 212° F. as possible without actual boiling.

Boiling soap solutions (as well as all other boiling solutions of pH value ranging from 2 to 10.5) gradually decompose the silk fiber. The longer the time, the greater the deterioration. It is essential, therefore, not only from the standpoint of production, but also from that of quality, that degumming be completed in the shortest possible time.

The time required to obtain a complete boil-off at a given temperature and pH is, apparently, inversely proportional to the soap concentration. Thus if 37.5% of soap completely degums silk in 1 hr., 25% will require 2 hr., and 12.5% will require 3 hr. Here again, the economics of the process make it necessary to deviate from the optimum conditions; that is, to use a smaller percentage of soap and to take a longer time for the operation than are dictated by theoretical considerations alone.

Two methods of degumming said to enable a reduction in the amount of soap ordinarily necessary are: (1) the double-bath method, whereby the silk is boiled off first in a partially spent soap solution, and then freed from the remaining impurities in a fresh solution; and (2) a recently developed process in which a combination of soap, denatured alcohol, and benzol is employed.

Boil-Off Oils

Typical of the boil-off oils are the following compounds: (1) sulphonated castor oil, (2) sulphonated castor oil and sodium silicate, (3) sulphonated castor oil and organic solvents. While little of a scientific nature has been published concerning the action of the boil-off oils, it is logical to believe that the optimum conditions of time, temperature, and pH value are the same as prevail in the case of the soaps.

Unless degumming is carefully carried out, use of the straight sulphonated oils may lead to damage of the silk, as the excess alkali is not buffered in any way except by the sericin and the soaking materials being removed from the silk. Again, the bath may have a pH as high as 12 at the start, and drop to 8 in the first 15 or 20 min., greatly slowing down the rate of sericin removal. However, addition of protective colloids to the bath is said to lessen the danger of damage.

With the boil-off oils composed of sulphonated castor oil and sodium silicate, the pH value of the bath is usually about 10.5 when the goods are entered, and does not drop much lower than 9.5 during the degumming process. Boil-off oils containing organic solvents are intended primarily to remove oil and grease spots simultaneously with removal of the sericin. In addition, they serve to keep in solution any impurities removed from the silk which ordinarily would produce a scum.

Degumming agents other than soaps and boil-off oils will be discussed in a future article.

Wage Chiselers . . .

ARE THEY TO DOMINATE OUR INDUSTRY?

By Granville A. Beals

The Greenwich Mills

THE question of wages in the woolen and worsted trade is one of grave importance to the members of our industry. I believe I am safe in saying that nearly all of the farsighted and able manufacturers are concerned about the living standards and purchasing power of their workers. Wages in many mills are now deplorably low both from the humanitarian and the business point of view. Wages should generally be higher, but what are we up against?

Briefly stated, the situation is as follows:

In recent years there has been greater disparity in the rates of wages paid in the different mills than there should be, but in normal times the mills that tried to make up for their lack of modern equipment and efficiency in merchandising by paying, or attempting to pay, lower-than-average wages met with sufficient opposition on the part of their workers to keep their wages at least somewhat in line with those paid by the better-equipped mills. However, since conditions have become so bad in this industry, the workers have had little resistance to offer and we have the sorry spectacle of certain manufacturers taking advantage of this situation to place wages below fair and decent levels.

The actual number of mills that have been guilty of excesses in wage reductions may not be very large, and the units are in most cases small ones, but the influence of their aggregate output from the market standpoint has been sufficient to place those manufacturers who believe in paying decent wages at a great disadvantage. The market price for goods has been largely set by those low-wage-paying mills whose executives have apparently regarded labor as a commodity and who have—particularly where their plants are in the smaller, isolated towns—taken advantage of the fact that their workers, with nowhere else to turn, are in an almost hopeless position.

It is unfortunate that market prices have been set largely by these low-wage mills, but their volume of production has been sufficient to have a very definite effect on price sentiment in the goods market, which has in turn affected the merchandising of all units in the industry. The consequences have been that those mills that wish to maintain the living standards of their workers, rather than close down and throw their help out of employment, have been forced to cut their wages to meet market competition. This cycle has been followed more than once, demoralizing the goods market, as wage reductions have been passed on in reduced selling prices, and working alike to the disadvantage of the workers as well as their employers.

Even now the rates of pay prevailing in some of the better-class mills are at least 50% higher than those paid by some of the low-wage outfits. This disparity is bad enough in itself, but of greater importance to the industry is the fact that through the various moves and counter-moves the whole wage structure has been lowered and standards of living and purchasing power have been greatly impaired. The manufacturers are no better off than when this started and the workers are much worse off.

The problem, then, is to raise the whole minimum wage structure to a basis uniform throughout the trade for any given class of woolen or worsted mill work, in this respect following the wage practice in the cotton and men's wear worsted mills of England. I do not know how this can be accomplished. Intelligent trade unionism which will co-operate with the manufacturers in the establishment of such uniform pay rates might be an answer to this problem, but the textile unions are in a difficult position themselves. The only step that seems to give any promise at this time is to air the situation thoroughly. After all, we have an industry with the majority of its executives distressed as they contemplate this wage situation. All that the individual manufacturer who has the interests of his employees at heart can do is to pay as much more than the low-wage mills as he possibly can, but he is handicapped by the wage costs of *his* goods in comparison with the cheap goods prices of his low-wage competitors.

If uniform minimum wages could be established for each of the various processes incidental to the manufacture of our products, and the low wage units brought up to this wage level, our workers would receive a fair living wage and their standards of living and purchasing power would be restored; manufacturers would be benefited for their sales would depend, not largely, as at present, on prices resulting from wage competition, but on their plant efficiency, on the quality of their products, their market reputation for style and service and on their ability as merchandisers. The cloth market, lacking the adverse influence of price cuts occasioned by competitive wage reductions, would be stabilized.

I don't know what can be done but it does seem to me that if we talk enough about this subject, and get mad enough, that something *will* be done. At present we—and I refer to the better manufacturers and merchandisers of this industry—are stymied by the wage chiselers and must proceed as best we can in an industry which suffers from the unenviable position of being dominated by its worst elements.

Rocker-Shaft Trouble

SATISFACTORILY REMEDIED ON SILK AND RAYON LOOMS

By H. E. Wenrich

◆ TEXTILE WORLD *is asked many times to recommend a book on the fixing of the silk type of loom. In every case we are obliged to reply regretfully that, to the best of our knowledge, there is no such book available. In recent years, however, consistent readers of this journal have found gradually built up for them a series of articles by Mr. Wenrich supplying exactly the practical information so frequently requested.*

ONE of the most annoying difficulties which develop in the lay motion is found at the rocker shaft. The rocker-shaft boxes, which are bolted to the sides of the loom, should be kept tight at all times and well oiled. Although the types of box are numerous, the directions for one are the same as for another.

During the constant service to which the rocker shaft is subjected, it is often neglected at the boxes. These become rusted for lack of oil, and both the boxes and the shaft develop wear, the latter getting the greater share. The rocker shaft *N* in sketch 1 of Fig. 1 shows the worn portion at *N*1. The wear appears mainly on the top and bottom of the shaft.

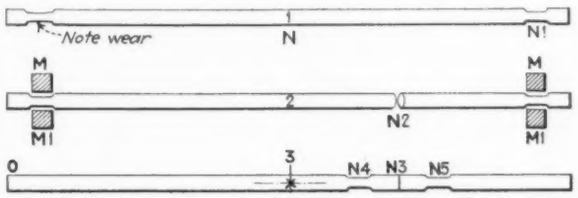


Fig. 1. Remedying worn rocker shaft

Fig. 2. Temporary rocker-shaft fix

This worn shaft becomes one of the worst contributors to poor cloth. As the lay is being driven forward, the motion beating in the pick forces the lay slightly upward the distance of the wear between the boxes *M* (sketch 2) and the rocker shaft. Next, as the lay is on the back sweep the rocker shaft has a tendency to fall backward to the bottom of the boxes *M*1 and to stay in this position until the beating-in of the next pick. As the lay falls down the slight distance indicated, the shuttle which is being driven out of the box will fly out of the shed several inches beyond the point where it enters. As the shuttle leaves the race plate, ends are torn out; and the resulting knots from spliced ends cause hangknots. Other defects are caused by the shuttle striking the shuttle guard and going back onto the race plate, as the loom keeps on weaving and producing mispicks, skipped ends, and loose picks.

Sketch 2 shows one method of correcting trouble due to a badly worn rocker shaft. The following procedure should be pursued: Remove the shaft from the loom and cut it in two at *N*2. Reverse the ends of the shaft and weld them together at *N*3, as in sketch 3. The worn parts of the rocker shaft will now be located as shown at *N*4 and *N*5, the center of the shaft being at *X*. Place the welded side of the shaft toward the plain side of the loom away from the picking motion, as the greatest strain comes near the picking-motion next to the box side.

Another fix for a rocker shaft which is causing trouble is shown in Fig. 2. This repair is but a temporary fix for the defective shaft when the loom is mounted and the fixer desires to weave the warp out before making a permanent job. The setscrews are loosened on the lay-sword feet and also on the parallel rocker foot at each end of the lay. The rocker shaft is then driven from the plain side of the loom toward the box or pick-wheel side. Allow about an inch for the job, as this will be sufficient for a temporary repair. Tighten up all the setscrews, and the job will appear as shown in Fig. 2. There will be a sufficient amount of the rocker shaft in the box at *O* to give satisfactory results until the warp has been woven out. The side next the picking motion, *O*1, needs the most, as the greatest strain comes at this side. The plain side of the loom—or, in case it is a double-box type, the side next the drive—must be assigned the small end of the rocker shaft, as at *O*2.

Many looms equipped with center bushings or boxes will allow the shaft to go in from the plain side of the loom more easily than from the box side.

To test trouble resulting from loose boxes, play on the rocker shaft, or loose bolts on the lay-sword feet, lift the end of the lay. If it can be lifted even a trifle, there is a defect which should be adjusted at once.

Another source of trouble will often be found at the protector plates, the daggers striking on one side higher than on the other. In trouble of this sort, it is necessary, before fixing the daggers, to see that no part is loose on the lay-sword foot which would cause the lay to rise up. Lowering the lay to correct position generally eliminates the trouble.

There are other adjustments on parts which are in fact portions of the lay motion, but which may properly be covered in separate articles due to the importance of the adjustments required. These include shuttle boxes and reed motion. If a fixer will study carefully the motion of the lay, he will have a better working knowledge of these parts—and his section will produce better merchandise and more of it.

FULL-FASHIONED SETTINGS FOR

Perfect Narrowing

By M. C. Miller, M.E.

Mechanical Engineer, Manville, R. I.

◆ *After having described in* TEXTILE WORLD *the intricate mechanism for narrowing full-fashioned stockings and explained in detail its operation—in both cases more thoroughly and clearly than anyone has even attempted to do it before—Mr. Miller began in the October issue a discussion of the settings. In this instalment he offers further suggestions toward attaining perfect narrowing.*

AN IMPORTANT element to set in narrowing—assuming that we have the needles, beards, and points correctly registering with each other—is the up-and-down position of the points in relation to the needles just prior to the time the points are to register with the needles and during such time as the register and locking of the needles is to be maintained. Prior to and at the time of register, it is important to see that the position of the end of the narrowing point in its relation to the needle eye is correct. The ideal setting is to have the points engage with the needles as low in their respective needle eyes as possible and yet cause the points to contact with the bottom of the needle groove before the curve of the groove commences, as shown in the needle-and-point register view, Fig. 49, (TEXTILE WORLD, Feb. 13, 1932, page 28).

It is to be understood that if the machine is old and worn, it may be necessary to cause the points to register somewhat higher than shown. It is particularly dangerous, however, to have the register take place much higher, not only for the reason that it is not desirable to crush the beard into its eye by the curve of the point groove, but because such high register and locking are also likely to result in the curve of the beard contacting with the restricted or narrower lower portion of the groove of the beard, as it engages with the flaring sides of the point groove. This is particularly pertinent as the point must become narrower near its end and so must necessarily restrict the width of its groove. By registering low, however, as shown in the drawing, there is a greater surety that the curve of the beard will be high enough in relation to the point groove to insure the beard curve contacting with the widest portion of the point groove.

Assuming that the point in its up-and-down relation to the needles at the time of register is correct, it is also very important to see that the hook or head of the needle is fully buried in the point groove, as shown in the needle-and-point register drawing, Fig. 49. If a greater portion of the hook projects outside of the point side walls than is shown, there is a grave chance, at the time the needle passes upward through the loop held on the point, that the needle hook will contact with the needle-loop head of the course knitted prior to the loops held by the points.

It is not to be assumed from the foregoing that overpressing at the time of registering is desirable. If this is resorted to and the end of the narrowing point contacts with the needle too harshly, resulting in too great a flexing of the needle and point, the needle head or hook, instead of being properly buried to the extreme distance allowed by the depth of the point groove, will be forced out of its groove a greater distance than with a medium or less flexing of needle and point. The amount that the needles are flexed, in relation to the needles adjoining the narrowing position, depends considerably upon the gage and temper of the needles and points. Careful observation alone can determine the exact amount of flexing, but as soon as any narrowing-machine setting at the time of register commences to show the hooks or heads of the needles coming out, even slightly, from their farthest buried position in their respective points, over-pressing is occurring and should be corrected.

The above is desirable for the first or loop-lifting engagement of the points and needles, but is absolutely essential for the second or loop-depositing movement, for the reason that in the latter movement of the needles, as for instance at positions 14 and 15, Fig. 50 (July, 1932, page 75), it is necessary that the needles pass upward through the loops held by their respective points. In this movement, even a slight projection of the head of any one of the narrowing needles will interfere with the free and uninterrupted passage of the needles upward through the point loops, whereas at the time of the first or loop-lifting engagement, as for instance in positions 5 and 6, Fig. 50 (May 21, 1932, page 32), it is more important that the lower end of the point be with certainty fully buried in the needle eye, as shown in the needle-and-point register view, Fig. 49.

Another important setting to observe is the position of the sinkers. The points should be free from the nose of the sinkers, and the top of the knock-over bits in the position shown in view 10, Fig. 50 (May 21, page 33), as in this position the points are going to shift sideways two indexes, and such movement must not be hampered by either sinkers or knock-over bits.

Still another important setting of the elements is that shown in positions 11 and 12 (July, page 75). At this time care should be exercised to note whether the fabric is low enough to permit the sinkers to come in over it.

A final setting to have in mind is the extent of the downward movement of the needles in the 8 (May 21, page 33), 12, and 13 (July, page 75) positions, Fig. 50. An excessive downward movement at these times would strain the loops held by the active needles that are not

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Previous instalments of this series on full-fashioned hosiery machines and their operation appeared May 31, July 26, Oct. 4, and Nov. 29, 1930; March 21, April 25, July 11, Aug. 8, Sept. 19, Nov. 28, and Dec. 26, 1931; and Feb. 13, March 26, May 21, July and Oct., 1932. Clippings of Mr. Miller's first series of articles on the past, present, and future of knitting mechanism are no longer available, but the articles are all included in Mr. Miller's book, "Principles of Knitting," recently published by the McGraw-Hill Book Co., 330 W. 42nd St., New York.

narrowing—that is, the needles between the point units. These movements of the needles below the knock-over bits should not be anywhere nearly enough fully to take up and rekink the loops. It is well to make this examination while knitting the tightest narrowed fabric that the machine is intended to knit.

When all these adjustments have been properly made, the fixer or knitter has done everything possible to produce the greatest number of perfect narrowings of which a full-fashioned machine is capable. It is of course impossible to get anything like 100% efficiency. There are entirely too many delicate adjustments to be made and maintained; and, even if this were possible, it is necessary to have not only the some 4,000 narrowing needles pliered for accurate alignment with the thousand or so accurately pliered points, but also to have the beards pliered and to keep them pliered accurately in a position central with their eyes.

While the above settings require great skill on the part of the knitters and fixers, there are certain other factors which disturb the settings and adjustments and which are not under the control of the operators. The first of these is vibration, which is largely the result of high speed, although improper machine erection and faulty and irregular cam settings many times account for excessive vibration. Another factor which is difficult to control is the rebounding of the yarn carriers, particularly during heel knitting. Such rebounding causes the tubes of the carrier, projecting as they do below the top of the jack sinkers, to contact with the jack sinker immediately outside the last active needle and thereby to disturb either the end point or the needle.

Still another factor which interferes with narrowing, and one even more difficult to control, is temperature variation. Excessive heat expands the machine and, due to the varied masses of metal involved, causes the needles, points, and sinkers to go out of register. On the other hand, if the machine becomes too cold, a shrinking or contraction takes place, resulting in an inverse loss of register.

MINIMIZING

Stitch Cutting IN CIRCULAR HOSIERY

By G. W. Sheeley

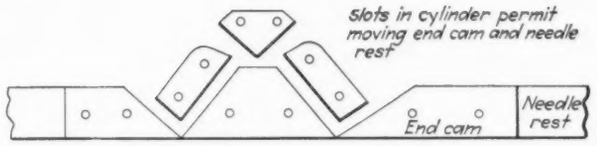
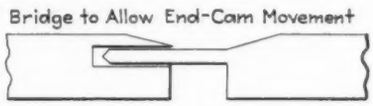


Fig. 1 (above and to right) Cams familiar to knitters some years ago



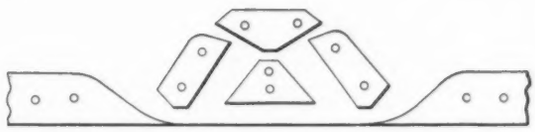


Fig. 2 (above) Elimination of positive needle race

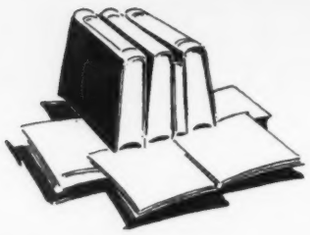
IN YEARS past, before we had the sinker-top cylinders, we very rarely had the trouble of cutting or tearing of stitches referred to by Walter A. Simond in his article entitled "Yarn Robbing" in the November issue of TEXTILE WORLD. Those were the days of the Keystone hand knitters, in which the only things we had to contend with were the relation of needle to cylinder, the spring-bottom needle, the positive needle race (Fig. 1), and the adjustable end cam for closing the space between the stitch cam and end cam as the end cam wore down. The end cam started the needle on the upward move as soon as the loop was made, thereby relieving the tension on the yarn.

The next step was the sinker head with another set of cams to cooperate with the stitch cams. This required a very close and neat adjustment of the two sets of cams to get the proper relation between needle and sinker to produce the stitch and fabric. It is mainly in knitting a hard-twist yarn that the sharp bend over the needle hook and sinker causes cutting. When using such a yarn or one that closely fills the gage of the cylinder, the strain can be relieved somewhat by backing up on the throw of the sinker.

With the advent of the sinker top, we had two sets of cams to contend with and no means of taking up wear or lost motion from wear of either sinkers or cams. At the same time the positive needle race was done away with (Fig. 2). With machines running at 240 r.p.m. the momentum of the down thrust of the needle naturally forces the needle at times below the point of the stitch cam and makes a looser course than did hand turning of the machine. There is a like effect when sinkers become worn. The trouble is not so great if the needles are kept rather tight in the slot, but that causes more wear on the cams and a tendency to give picker trouble and broken or bent wales. On all machines a range of yarn can be used by changing the length of stitch and adjustment of sinkers.

Take as an example a 176-needle, $3\frac{3}{4}$-in. cylinder. On this I have knit cotton yarns ranging from 7s to 18s, or from 59.5 to 23.1 grains per 50 yd. A cotton yarn numbering 14s or 29.76 grains is about the mean yarn for this machine of 14.9 needles per inch. In adjusting the sinker, the throat must be set flush with the back of the needle when it is on the highest point of the sinker cam. Then, in using either finer or coarser yarn, the sinker should be set either farther forward or farther back to a point where the yarn is not under strain. In timing the sinker with the needle, care must be taken to see that the sinker is moving in just in time to move back the old loop as the needle is coming up from making the new one; also, in using a yarn of maximum size, the angle of the face of the stitch cam must be changed to keep as few needles as possible from engaging yarn at one time. It is necessary to set both sides of sinker head alike, or there will be one loose course and one tight one and one gore of heel and toe will be more loose than the other.

Social Trends



STUDIED BY SCIENTISTS

AND TRANSLATED INTO POLICIES

DESPITE its rather formidable title, President Hoover's Research Committee on Social Trends has produced a report of live interest to every man and woman in the United States and perhaps particularly to every employer of labor. This report has just been published in book form under the title "Social Trends."*

The work is especially significant because it represents the first attempt ever initiated by the head of a nation to survey an entire society by scientists; and because all the research activities of the group were directed toward translation of trends into terms of policy, both public and private.

The study is the latest and most comprehensive of a series, some of them governmental and others privately sponsored, beginning in 1921 with the report on "Waste in Industry" under Mr. Hoover's chairmanship. In one sense, "Social Trends" may be regarded as a companion-piece—a complementary work—to "Recent Economic Changes," published in 1929 by the President's committee which studied that phase of our national life. However, the report just published is of far broader significance than was the earlier one.

In a foreword to "Social Trends," President Hoover states that "it should serve to help all of us see where social stresses are occurring and where major efforts should be undertaken to deal with them constructively."

In its two volumes, the book comprises 29 chapters and an over-all committee report. The group of eminent scientists responsible for it was a purely technical committee; consequently the chapters themselves have been held rigidly to evidence, and the function of broad summarization has been confined to the over-all report which introduces the first volume.

President Hoover conceived of this plotting of social trends as tied up with the decennial census of population. Consequently the findings will be valuable for at least another decade, because of the census interval. However, no such restriction can be placed upon their usefulness; they carry implications which will be pertinent for certainly a generation.

The underlying psychology to be noted in the report is reflected in the emphasis upon change, rather than upon stability. Change is itself a corrective of change. Invention and discovery are dynamic forces. Consequently the findings of the committee are in direct opposition to those who would say: "Let's sit down and have a research holiday." Instead, the committee would stimulate social invention as a corrective for the ill effects of past social changes.

The over-all report contains this important statement: "The primary value of this report is to be found in the effort to inter-relate the disjointed factors and elements in the social life of America, in the attempt to view the situation as a whole rather than as a cluster of parts."

Although each chapter of the two volumes is of vital interest, industrialists will probably find most generally applicable significance in the section on population. For example, manufacturers who try to estimate future markets have been expecting a population of 140 millions by 1940, but the calculations of contributors to this report, based on information not presented in the decennial censuses, show that the declining rate of increase has been particularly striking since 1923, and that hardly more than 132 or 133 millions are to be expected by 1940. This means that the markets for mine operators, farmers and manufacturers, whose plants may be over-equipped and whose problems are those of over-production, will be considerably smaller than has been expected, unless foreign markets are expanded, or our domestic standards of consumption are raised. Of equal interest are the facts presented regarding current changes in type of population.

Throughout the report are data whose application has practical bearing upon future business expectancies. In fact, business men who have been wondering just where their businesses were going—and this includes all business men—will find real guide-posts in this study.

An optimistic thought to be drawn from the report is the fact that social trends have shown continuity. Under the stress of depression, people are prone to yield to the belief that sudden and disastrous changes are taking place. This survey leaves one with the feeling of continuity rather than of catastrophe.

The Fields Covered

Since in this brief review it is impossible even to tap the resources of the report, a listing of the chapter headings is possibly the best means of indicating the scope of the work:

The Population of the Nation; Utilization of Natural Wealth; The Influence of Invention and Discovery; The Agencies of Communication; Trends in Economic Organization; Shifting Occupational Patterns; Education; Changing Social Attitudes and Interests; The Rise of Metropolitan Communities; Rural Life; The Status of Racial and Ethnic Groups; The Vitality of the American People; The Family and Its Functions; The Activities of Women Outside the Home; Labor Groups in the Social Structure; The People as Consumers; Recreation and Leisure-Time Activities; The Arts in Social Life; Changes in Religious Organizations; Health and Medical Practice; Crime and Punishment; Privately Supported Social Work; Public Welfare Activities; The Growth of Governmental Functions; Taxation and Public Finance; Public Administration; Law and Legal Institutions; Government and Society.

In addition to the report proper, thirteen monographs on parallel subjects have been prepared and published by the same book company.

*"Social Trends"; McGraw-Hill Book Co., New York; two volumes; $10.00.

Picker Straps FROM SCRAP

By George Rice

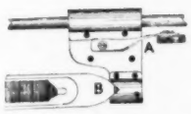


Fig. 1. Strap too long

MOST weaving machinery in the mills throughout the country is now equipped with scientifically designed and competently made lug and holdstraps, but the little ¾- by 6-in. picker straps that pull the pickers back into place so as to clear the boxes as the boxes change on drop-box looms seldom are given much consideration by mill managements—although many loomfixers know their importance. Consequently there are many weave rooms in which picker straps have to be crudely and unevenly sliced out of any kind of scrap leather available.

Card-clothing leather possesses the necessary elasticity and sustaining properties for carding wires, but lacks most of the properties essential to picker straps for looms. Straps made from this material will pull the pickers to which they are attached back into place for a while, but as the leather has been weakened by the holes for the wires, and was never intended for picker straps, such straps soon break and time is lost replacing them.

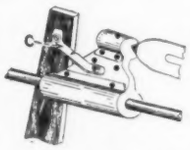


Fig. 2. Strap too tight

Some loomfixers resort to rawhide picker straps, for then they can cut them from new hides which were purchased for use as lace leather for belts. Rawhide lace leather is superior for belt-lacing purposes, but when used for picker straps it tends to stretch in places narrowed down by irregular cutting. Loomfixers who are required to make their picker straps from old belting leather are obliged to thin the leather because it is too thick, and to do this with a knife usually results in high and low places that do not improve the working conditions of the straps.

There are several reasons why picker straps which are made from cast-off leather, or new rawhide, by the pocket-knife method in weave rooms are uneconomical as compared with standardized straps made by machinery in factories that do this kind of work. The factory may not use all new hides, for the leather required to make a full-sized picker strap is so small that scrap leather can be used; but it will be new leather and free from the weaknesses brought on by oily deposits and decay. The hand-made picker straps seldom are uniform.

The lines and dimensions vary greatly in straps made with a jack knife and often the screw holes are not centered accurately. Some straps will be too narrow and feeble to do the work, while others will be too wide and bulky. Still others will be too long or too short. If the looms are running on plain work with one shuttle only, the length, stretch, and general cut of the picker straps on each side of the loom will not matter very much, as the straps need only pull the pickers back into position in their respective boxes. But if a loom is weaving a pattern which requires the boxes to change, and the picker straps are cut from leather which will stretch or are cut too long in the beginning, a condition will arise like that shown in Fig. 1, in which the length of the strap has permitted the picker to recoil forward far enough away from the stick at *A* to get below the shuttle at *B* with the change of the boxes. This can happen with a slack picker strap in use even when the boxes are properly timed, because the shuttle point will catch under the picker on the rebound of the latter. And there the picker will have to stay until the lay swings over with the next pick. With the picker and the shuttle in this death-grip, something has to give way —usually the stick, which breaks off, or the lug strap, which pulls loose, or the picking ball, which snaps the stud. In either case the cost of the damage will be more than for a gross of factory-made picker straps.

When picker straps are made by the loomfixer, and no standardized pattern is followed, some of the straps will be too short. When such straps are placed in position on the stick and the picker, they will be subjected to an abnormal strain when the stick is perpendicular midway in the throw. A short strap is put on straight, as there is not enough length to it to loop it over. Continuous stretching of the tight strap racks the leather and a fracture starts as shown at *C* in Fig. 2. Unless this is noticed by the loomfixer or the weaver, and a new strap put on, the strap will break at the weak point, the picker will not be drawn back by the receding stick, and the on-coming shuttle will strike the picker somewhere in the center of the shuttle box and get stalled there as the lay comes over.

The opposite to the tight strap which goes straight from the screw hole of the stick to the screw hole of the picker is the loose strap which is looped over in the fashion shown in Fig. 3. Lack of uniformity in cutting these straps from picked-up stock about the mill is what makes them about as inefficient for their work as the tight straps or any straps which have been slovenly cut by hand. The fixer does the best he can with the available stock and dull cutting equipment; but he is not a leather worker although perhaps a good loom mechanic. By looping a long strap like the one shown, the fixer establishes a form of buffer for the picker to strike if the leather is stiff enough to cause the picker to act as an elastic fender. This is favorable to filling which is inclined to knock off, because the bluntness of the blow which the shuttle delivers against the picker, when the picker is held close to the stick by a tight strap, is avoided by the looped strap, as this holds the picker off a little from the body of the stick. Hence the shuttle is checked more softly as it reaches its destination.

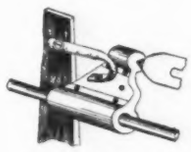


Fig. 3. A looped strap

Spongy leather will not do for the looped type of strap; yet as a rule this kind of leather, or leather which is the opposite and is hard and brittle, because of its dry state, is about the only kind at hand in the leather junk pile of a mill. The spongy leather will be too feeble to do anything more than pull the picker along after the stick, while the boardy leather will be so stiff that there will be times when it will spring the picker too far forward after the stick has pulled it clear back, thus threatening interference with the upward or downward movements of the boxes on pick-and-pick patterns.

THIS DEPARTMENT—

offers a new subject for discussion each month and gives readers' comments on problems introduced in previous issues. The subject opened in November is closed and a summary of contributed ideas is given on opposite page. Overseers and others are invited to discuss the subject presented under the heading "Weavers Working in Back Alley" and other questions brought up in the super's talks. Letters accepted and published will be paid for without regard to length. Brevity is desirable.

▼

Overseers'

WEAVERS WORKING IN

"THE subject this morning will interest anyone engaged in weaving," said Superintendent Chase as he glanced around to see if any overseers were missing. "So much has been said and written, both pro and con, about the new system of having weavers work in the alley behind the looms that I want to find out how you fellows stand on this question. One of the new cotton looms on the market has been equipped with three shipper handles, two on the front of the loom and one in the rear, to make it easy for the weaver to start the loom without leaving the beam alley. Do you think this plan of requiring weavers to work in the back alley is better than the old system?"

"As I have figured it out," Bill began, "the best result will be obtained by sticking to the old method. The only things a weaver can see from the back alley are bunches, slubs, knobs and oily and dirty warp threads. Bunches and slubs, as we all know, can be eliminated pretty thoroughly in the preparatory processes, or before the yarn reaches the loom. What can the weaver see in the front alley? Bunches and slubs in *both* warp and filling, dirty and oily warp and filling, loops and kinks in the filling, broken picks, open places, shuttle marks, starting marks, reed marks and many other defects that are not visible from the back alley unless the weaver uses a periscope. Of course there might be something in this new system that I cannot see through, but to me it looks about the same as driving an automobile from the back seat."

"Bill's attitude on this question is understandable if we consider that he is not the best for the plant. They guarantee to lower production costs and they work with this as their sole accomplishment. The cost of bringing them into your plant is excessive, because the initial cost is only a beginning, since they really only start the work. After they leave, it is necessary to create a department to continue the work. The original installation of any system is worth nothing, for it is the follow-up that makes any system a success.

The percentage of overseers capable of doing this work is so small that they are not to be considered. Grant to some overseers the mental capacity for this work, there is yet another element to disqualify them. Most of them have been raised in the plant and have held their present positions for any number of years, and everyone in the plant knows the overseer. Many in his department played cowboy with him when a boy and, if he tells them they must "spruce up" on their jobs, they take it as advice from a friend—not as an order from their superior. How can you depend upon this type of man to reduce your costs to a minimum?

One of the chief requisites of a man for this work is vision. You cannot find any foreman with the vision that will enable him to picture one complete operation in his own department in all the details that will be shown in a real time study made by an engineer who has studied the operation for a short time. If you can find such an overseer, he will not be in that position when business begins to improve.

The installation of an engineering department that will function as a regular department in charge of a capable engineer who has the full backing of the chief executive will be able to accomplish wonders for any plant considering reducing costs in a scientific manner. The engineer will be working for the interests of the plant. His experience in scientific cost reduction is worth more than the experience of the outside engineering organization.

JOHN O. MOYER.

On an Engineering Survey

Editor, Overseers' Round-Table:

If the firm can afford to hire an outside group of engineers to overhaul and examine the plant completely, I would certainly suggest it. However, this recommendation would be made only on condition that they can make a *complete* examination, for half a job is as bad as none.

A great deal of benefit may be obtained from employing outside engineers. First, they are thoroughly experienced and acquainted with all types of textile machinery, having worked in many factories. They can tell you at a glance whether you are operating with the latest and most efficient methods, or whether you are wasting valuable time and money because of antiquated methods. Engineers have made detailed studies of problems similar to yours. Therefore, they may be able to offer worth-while suggestions concerning other aspects of your manufacturing practice in addition to machine settings and operation. For instance, they might suggest a more profitable and convenient arrangement of the motors, a cleaner method of dyeing, or a faster means of cleaning around the machinery.

And, finally, you have your choice. If you do not wish to adopt the engineers' suggestions, you don't have to. You are not obligated in any manner, and the entire choice remains with you. This all counts and, in the long run, marks the difference between the factory running profitably and the one in the "red." WILL HERMAN.

Editor, Overseers' Round-Table:

I do not favor bringing an outside engineering organization into a plant, neither do I favor depending upon the foremen to accomplish the task of keeping the plant up-to-the-minute on layout, production methods and the lowest possible production costs.

I do, however, favor the work being done as a regular departmental activity in charge of a staff man who reports directly to the chief executive.

The outside organization brings with them a wide range of experience, but their

Round-Table

BACK ALLEY

sider the fact that he hasn't been in a sheeting or print cloth mill recently," Pete spoke up. "On fancy goods, I grant you, there isn't much to say for the new system. But in a large weave room running on plain constructions, the plan of having the weavers spend most of their time in the back alleys strikes me as being a good one. Moreover, it is gradually becoming more general. At the Brown Mill, where they adopted the "multiple system" in weaving about four years ago, the weavers spend almost all their time in the beam alleys. The battery hands take care of filling yarn, so the weaver can look after his loom and watch for possible causes of end breakage, and they have found that the quality of their cloth has improved quite a bit. The weaver can see wild threads in the warp, catch them before they begin to mat up, and of course it is much easier to see slubs and gouts in the warp while working in the back alley. This plan, so I am convinced, will enable the weaver to get higher production, because he will have fewer loom stops, and I am in favor of it for plain weaves. The old adage—'An ounce of prevention is worth a pound of cure'—certainly applies here."

▸ Do you favor the plan of having weavers work in the back alley? What are the advantages and disadvantages the system?

Editor, Overseers' Round-Table:

Too many mill owners have the idea that there are better brains outside of their organizations than within. They are willing to spend thousands of dollars at the recommendation of recognized experts; but let one of their employees suggest any large-sized change, and they will say that the cost is too great.

Without belittling the expert's scientific, theoretical knowledge, I do not think he can acclimate himself to the temperament of a strange mill. He will often find a lack of cooperation, as his very presence will be objectionable to department heads, who will feel that he is there to criticize the systems they have found best suited.

Let the company offer substantial rewards for money-saving suggestions from its own employees. Let the overseers get together in a special research campaign. Let them consider different department layouts, different cost systems, bonus and production plans, labor-saving devices, improved machinery.

Perhaps every organization should be revamped every few years. If so, there are men in the organization who are familiar with its very heart-beat; who can, if given the opportunity, find as many losses in efficiency as any expert.

W. F. P.

Editor, Overseers' Round-Table:

Engineering studies made by well-established firms that have demonstrated their abilities cannot be questioned by any overseer, for their proposals are based upon thorough investigation of conditions in the plant. Industrial engineering organizations cannot exist very long unless they are able to produce profitable results for clients.

In the small town of Penacook, New Hampshire, for instance, two splendid mills in their day have been sold under the auctioneer's hammer for a paltry sum. The doors of these mills were closed because the right cure for their ailments was lacking. It is not expensive to get a doctor when one is needed, but it may prove both expensive and fatal to the business if, when changing conditions begin to paralyze a plant's efforts to compete with more modern mills, the doctor is not called in to prescribe the proper medicine.

Charles H. Willey.

Editor, Overseers' Round-Table:

I am in favor of having a consulting engineer visit the mill and make a thorough and intensive study of the plant and the production. However, I do not believe in calling in an engineering firm that has something to sell, other than the knowledge, experience and ideas of its engineers.

One of the chief advantages of having a consulting engineer visit the mill is that as he travels from place to place he is always learning of new methods and processes, for he sees the latest machines in actual production, and is able to inform his clients regarding mechanical improvements. No executive has the time or facilities for visiting many plants and therefore should appreciate the engineer's experience.

Many companies are reluctant to call in a consulting engineer, fearing that he may advise some drastic scrapping of machinery, and the purchase of new equipment. Personally, I am inclined to think that what is more frequently required is, not a scrapping of machinery, but a scrapping of old ideas. It is better to get 100% service out of existing equipment than to install expensive machines and let them be handicapped by antiquated ideas.

All employees should remember that a more efficient mill means more orders and consequently more work, so we should be glad when other eyes see that which we have seen, and yet not have seen, because habit and custom have obscured our vision.

L. C. A.

SUMMARY

Engineering Studies. *About 46% of the replies recommended the employment of an outside engineering organization to study the machinery layout of the plant. The engineer's experience in other mills, his unbiased point of view, and his superior knowledge of modern machines and manufacturing practices were mentioned by those favoring the proposal to engage an independent engineering firm. The 36% who objected to bringing in the industrial engineers felt that they disturb the morale of the plant, that their fees are too high and their work sometimes too superficial. About 18% of the letters did not take a definite stand either for or against outside engineering firms, but some replies indicated a preference for encouraging mill employees to make suggestions and one man urged the creation of an engineering department at each mill.*

QUESTIONS AND ANSWERS

Cotton Curls in Verticals

Technical Editor:

We should appreciate your opinion as to how serious is a slight curling in the vertical opener and your recommendation as to the best way to eliminate it. (7922)

The mere presence of curling in cotton is an indication that there is an improper setting or adjustment which must be corrected before the ultimate recovery of the staple is attained. Curling is unquestioned evidence of damaged staple and is a direct indication of unnecessary waste.

After staple has become curled, it is in a condition which is impossible to correct. As these aggregations of fibers which give the curly appearance are presented to the beaters in the pickers, they are either detached in small lumps or receive the blow of the picker in such a manner that they are either weakened or broken.

Those curls which are not reduced in size in the picker room and which find their way to the card in the finished lap, are subject to further damage by the licker-in, as there is a great probability that the position of the curl, with its long axis parallel to the feed plate and feed roll, will receive the teeth of the licker-in while held at two ends.

Inasmuch as yarn strength is more or less proportional to the number of fibers of average or greater than average length, the necessity of preserving these longer fibers from damage is evident. We are therefore confident that if the stock is curling, there is possibility of improvement in the yarn as to appearance and strength as soon as the cause of the curl is removed.

Formerly the impression was prevalent that there was a tendency for cotton to curl in the vertical, and for many years mills running staple longer than 1⅛-in. were afraid to use the vertical. However, with the proper settings and adjustments, staple as long as 1¼-in. has been successfully processed without any signs of damage through curling.

The cotton as delivered to the vertical should be in a well-opened and fluffy condition, free from hard lumps and large pieces, so that there will be no likelihood of crowding the stock between the beater fingers and the cleaning grids. These grids should be set so that there is about $\frac{5}{32}$-in. distance from the tips of the fingers to the grids in the last section, and about $\frac{1}{16}$ in. more at the first section when running small productions. This distance should be increased as the production goes up, until at the higher production the distance from the tips of the beater fingers at the last section will be ¼ in. and the first section from $\frac{7}{16}$ to ½ in.

The bars should be brightly polished and free from nicks and burrs, which would tend to retard the passage of the stock. The tips of the picks should be sharp. If they are rounded from wear and long usage, they will strike a glancing and sliding blow, which will not only fail to carry the stock along, but will not be effective from a cleaning standpoint. These conditions have been known to cause curling.

Insufficient air current through the vertical is a very common cause of curling in all classes of opening machinery. In verticals especially, where the path of the

stock through the cleaning elements is comparatively long, it is important that the stock be carried along briskly, without undue delay and crowding. Frequently the fan of the machine following the vertical in the cleaning line is not powerful enough at ordinary speeds to furnish sufficient air current. In such cases it is advisable to place a screen section with apron delivery at the discharge of the vertical. This screen section furnishes a strong, steady, effective air current which will carry the cotton through the vertical and, in addition to removing a certain amount of dust and fine lint, will afford a very satisfactory delivery of the stock to the next cleaning machine or to the lattice feeding the conveyor pipe.

In order to obtain the best results in the vertical, the speed of the beater should be from 750 to 900 r.p.m. If the speed is under 750, the stock has a tendency to lag and pass through in a sluggish manner; whereas if the speed is higher than this, the staple is thrown against the grids with such force as to give the passage of some good staple through the grids.

▼

Streaky Dyeings on French-Spun Yarn

Technical Editor:

We are enclosing a sample skein of 1/20 French-spun-zephyr yarn dyed brown. You will notice how streaky this color is. As we have previously dyed many 100-lb. lots of this color with the same formula, we are at a loss how to account for it.

We have considered every probable cause of what may cause streaky dyeings and have come to the following conclusion: Owing to present business conditions, we are getting a considerable number of small 25-lb. lots, of which this is one, and in many cases are having to dye them in a 200-lb. Klauder Weldon machine, this means only about 4 sticks of yarn where there should be 24, and, of course an exceptionally long liquor. We have formed the opinion that this results in an irregular feed of both dyestuff and sulphuric acid. Do you think this is the cause of our trouble?

The following formula was used: Supramine Bordeaux B, Orange 2G, Xylene Red 2GL, Xylene Violet RL, glauber salt and sulphuric acid. The bath was started cold, brought to the boil in 45 min., and boiled for a further 50 min. No further additions of dyestuffs were made. (7942)

First we would mention the use of Bordeaux B in this combination. This dyestuff belongs to a class which is capable of dyeing wool and silk from a neutral bath; and even with acetic acid will be taken up rather rapidly at a full boil. With sulphuric acid, however, it will not have the leveling power of the Orange 2G, for example, with the result that under the tie bands and inside the twist, you will find the orange, but little trace of the deeper color. We believe you can find a substitute for the Bordeaux B, which will help matters considerably.

The second point is that when dyeing a small amount of material in a long liquor, it is necessary to calculate the acid on the weight of wool, also the dyestuff, because both are exhausted from the bath in the course of the dyeing process. On the other hand, the glauber salt, which is a buffer regulating the activity of the acid, should be calculated on the volume of liquor and not on the weight of goods. It is a disadvantage to have only four sticks of yarn in the machine; nevertheless the yarn travels around the same as if all the sticks were full, and no bad effects should result. If you will increase the glauber salt and hold off half the acid until the dyeing is half completed, you will notice a change for the better.

▼

Rayon Warps Chafed

Technical Editor:

We are running some artificial warps. If the weaver has to pick back, he has quite a little trouble in getting started again on account of the synthetic fiber chafing and getting fuzzy. Our warps are sized before they are put in the looms; but even with the sizing on, this trouble appears. Do you know of any substance we could put on the warp which would avoid this fuzziness? (7956)

To our knowledge, no chemical has been found that will eliminate the chafing and fuzziness in rayons after the weaver has picked back, although many have been tried. With care on the weaver's part, however, rayons will not fuzz so badly that a warp has to be pulled up. Chafing is largely due to carelessness.

In picking back on rayons it is absolutely necessary to have a smooth pick bone. The weaver must be cautioned not to dig down or bear on the warp too heavily when withdrawing filling threads. The warp should be slackened, although not so much that the warp ends will fly up. The weaver should raise the shafts to their highest position before picking back. Weavers should not pick back in only one position; they should occasionally shift a half inch or so.

▼

Silvertone Effect on Skein-Dyed Yarn

Technical Editor:

We are enclosing three samples of yarn marked "A," "B," and "C." These yarns are skein-dyed, leaving certain fibers white. Will you kindly examine the samples and advise us as to the nature of the white fibers. (7936)

Our examination indicates that in the case of samples *A* and *C*, the undyed fibers are wool, but of that variety known as kemps. Under the microscope these fibers seem to be much coarser than the rest of the wool making up the yarn, also

QUESTIONS AND ANSWERS

the scales and serrations are much farther apart than they are in normal wool. In some cases the tip of the fiber is colored, but not to the same depth as the other fibers. In some of the kemps, the fiber is stained in the middle, probably a surface stain caused by contact with the other fibers. There is no way possible to dye samples *A* and *C* a solid or level shade, because kemps cannot be dyed to a shade of any great depth.

Sample *B* is a two-ply yarn twisted with about 5½ turns. One yarn is fine and is wrapped about the other. The fine yarn contains no undyed fibers. The coarser yarn is spun with six turns in the opposite direction from the twist in the two-ply. This coarser yarn does not contain any kemp, but the undyed portion is rayon of the regenerated-cellulose type. By the use of direct cotton colors it would be possible to color sample *B* a solid shade. This yarn would have more luster in places where the rayon is present, but the amount of rayon present is so small that this would not be very noticeable.

▼

Passing of Blamire Feed

GALASHIELS, SCOTLAND.

Technical Editor:

I have noticed in a recent issue of your publication that one of your readers is urged by his English spinner to adopt the Blamire feed for his woolen cards. If your correspondent's creels on the second breakers are similar to the "ball and bank" feed so much in use in Scotland, then his English spinner, in saying that the Blamire feed gives more doublings, shows that he is remarkably faulty in observation.

A balling machine attached to a breaker will produce a ball or cheese of anything up to 4 lb. weight. Sixty of these are put in the bank or creel to feed the next machine (the intermediate). That procedure gives a satisfactory blend of 240 lb. when the connecting link between the intermediate and the finisher card is a Scotch or Apperley feed. A Blamire feed supplies only two rolls or laps of slubbing to the next machine. These will not weigh more than 40 lb. and probably will weigh less, so that the mixing power of a creel feed is six times greater than that of a Blamire feed. Moreover, the latter takes up far too much space and is easily affected by wind currents, which disturb the slubbing film.

The result is that the Blamire feed is almost extinct in England and was never used in Scotland at all. Its main use was in the Morley (Yorkshire) trade where "mungo" blends were so short in fiber that they would not carry up over the Scotch-feed lattice in the normal way.

Of course, the "creel" feed takes more labor and more time; but where quality of work and perfection of blending are the first maxims, then there is no arrangement which can compare with it satisfactorily. Two or three high-class Scottish makers have four single-cylinder machines per set, and the three connecting links are all "creel" or "ball and bank" feeds. Moreover, the creel feed tends to lay the fibers more parallel with the axis of the yarn

and to give a character more resembling worsted than the other feeds do.

T. OLIVER,
Principal Emeritus,
The Scottish Woollen Technical College.

▼

Bleaching and Dyeing Sewing Threads

Technical Editor:

In reference to the item in the October issue of TEXTILE WORLD, I list below the bleaching procedure of the largest cotton thread companies. This applies to Egyptian cotton from which most of the better grades of cotton threads are manufactured. In case your inquirer desires the routine detail, this might meet his requirements. The routine follows: Chain; kier boil caustic soda, 5 hr.; kier wash, 1 hr.; first chemic, 1¼ hr.; second chemic, 1¼ hr.; chemic wash, 1 hr.; gray sour box, ½ hr.; drain, ½ hr.; pump sulphuric acid, ¾ hr.; drain, ¾ hr.; wash, 1 hr.; white kier, 3 hr.; boil; wash, ¾ hr.; white chemic, 1¼ hr.; white sour box, ½ hr.; drain ¾ hr.; pump sulphuric acid, ¾ hr.; drain ¾ hr.; wash, 1 hr.; first soap, 1 hr.; second soap, 1 hr.; blue; extract, 20 min.; dry.—WM. D. SMITH.

▼

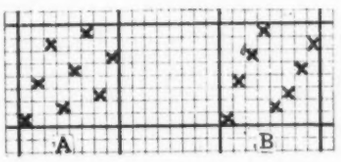
Shires in Rayon Tape

Technical Editor:

We are enclosing one small and one large sample of tape. The large sample was made on our looms, and we are having trouble with shires at every repeat of the pattern, which is an eight-shaft satin weave. We have tried this both face up and back up with the same results. We have also tried loom adjustments. The smaller sample represents the goods which we are trying to duplicate. On looking at it you will notice the diagonal lines running through it, and we are under the impression that these are made by some sort of a finishing process. Kindly let us have your opinion. (7949)

In our opinion your difficulty is due solely to your dobby chain if the fabric is made on a dobby loom, or to the arrangement of the cams if made on a cam loom. Your sample is not interlaced according to an eight-shaft satin weave; and although the same effect can result from a misdraw, it is not likely that all of the tapes would be drawn incorrectly.

Design *A* attached shows the correct pegging draft for an eight-shaft satin weave; and design *B* shows the present interlacing of your sample as determined from a pick-out of the weave. Correct this, and it is probable that your trouble will disappear. The diagonal lines in the sample you are endeavoring to reproduce are natural to the eight-harness satin weave and are not the result of any subsequent finishing process.



A—Correct pegging for draft for 8-shaft satin. B—Incorrect draft.

▼

Shade Variation in Silk Hosiery

Technical Editor:

We are enclosing a stocking which shows a decided shading between the leg and the foot. We are positive that the silk used in the leg and the foot is the same; that is, out of the same chop, but there is probably a day or two difference in soaking. We use the same soaking formula in our throwing department for all silk. Will you advise us just where to look for this difficulty.

We are enclosing also two undyed stockings—one seamless and the other full-fashioned. Both samples were knit from the same cone of silk on the same day, allowed to stand for approximately six weeks, and boiled off together. Can you suggest the cause of the variation in boil-off? (7965)

One of the most common faults in silk hosiery is a variation in shade between leg and foot. We are enclosing a copy of an article which appeared in the November issue of TEXTILE WORLD, which discusses the major causes of this defect and the precautions needed to avoid it.

In this particular case, we believe that the variation is due to a difference in stitch construction. That is, the full-fashioned samples are more tightly knitted in the foot than in the ankle. It is possible, of course, for this trouble to be due to heavier silk in the foot. A practical test for you to make is to run off two or three sets of legs and then take the same cones of silk from which legs were made and put them on a footer and foot the legs. In this way, you will be reasonably sure that the same silk has been employed in making both the legs and feet of the stockings. If this test should show the marked difference between foot and leg, as shown by the sample submitted, it would be self evident that the footers need to be tuned up in harmony with the leggers, or *vice versa*.

The differences in stitch construction of the full-fashioned and circular hosiery, explains the variation in shade between the two types of hose. We note also that the foot of the seamless style is slightly tighter than the leg, although the difference probably is not sufficient to cause any trouble. On a seamless machine, unless it is very carefully adjusted, there is always a possibility of producing a marked variation in fabric between the foot and leg through the necessary lift and drop of the cylinder in changing from its different knitting and tensioning positions.

Farm Relief Plan

OF ALLOTMENT TYPE WOULD ENCOURAGE BOOTLEGGING

By Paul Wooton

Washington Correspondent, TEXTILE WORLD

◆ *Beer, taxes, tariff, and all the other pet hobbies of Congress no longer interest the cotton manufacturer. He is concerned today with just one subject in Washington: the domestic allotment plan of farm relief. So, quite appropriately, Mr. Wooton devoted this month's Washington letter to that theme.*

THE domestic allotment plan for the relief of agriculture involves such difficulties of administration as to raise grave doubts as to its practicability. To propose to put such a plan into effect without large expense for administration is conceded to be impossible. Opponents of the plan anticipate that the cost when added to the allotment would constitute a prohibitive total. To make sure that millions of farmers had complied with the regulations, vast machinery would be necessary. Unless something akin to perpetual motion is worked out this could not be done without staggering cost. If rabbits are going to be pulled out of hats it is certain that rabbits first must be put into the hats.

One of the inconsistencies of the situation is the fact that some of those who are the strongest supporters of the domestic allotment plan which, in effect, places a sales tax of from 30% to 50% on articles of prime necessity, were strong opponents of a small general sales tax from which food and clothing were exempted.

Regardless of the size of the force, a large amount of bootlegging in the commodities involved would be expected. A farmer butchering a hog for his own use would be tempted to sell a part of it to a friend, particularly when each would profit materially if the illicit profit were split between them. A restaurant keeper would be likely to keep in close touch with a good many of his farmer friends.

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The committee at first proposed a tax of 5c. on cotton. The farm leaders, however, submitted a proposal that would result in a tax of 8c. on the basis of their proposed fair exchange value. The committee was advised that cotton goods are now selling at the mills at a price from 15 to 18c. per lb. Since there is waste in the manufacture of the raw cotton, the tax would amount to more than 8c. per lb. This would mean that the sales tax on cotton goods in effect would be a 50% tax.

Witnesses appearing before the committee said that the tax could have no other result than to restrict consumption in a material way. It was pointed out that an artificial increase in the price of raw cotton is very different from an increase in the price resulting from the pull of increased consumption. There is nothing in the plan that would increase consumer purchasing power but since it is probable that similarly high taxes would be placed on flour and possibly on other products, the consumer of cotton goods would have less to spend on clothing and since the clothing would be more costly his purchasing power would be curtailed from both directions. This would mean that the surplus of cotton would be increased and the pressure on world markets would be that much greater with the result that the world price would be reduced.

While the plan contemplates the imposition of the adjustment charge on silk and rayon, there would be even there some discrimination against cotton because of the difference in weight. Cotton is used widely for bagging and wrapping materials and for a wide variety of commercial purposes where substitution of other materials would be the natural result. The committee was told that a 5c. tax on cotton bags would increase the cost of bags for feed by $20 per thousand. The effect would be the substitution of burlap bags or paper bags. The same would be true in the sacking of flour, sugar, fertilizer, cement and plaster and other items.

"IT IS PREDICTED that in the long run the domestic allotment plan would represent an everlasting tax upon the consumers of the country for the primary benefit of the owners of farm real estate. This is said to explain the support which the measure is receiving from banks, insurance companies and others owning farm mortgages."

Were the consumption of cotton discouraged enough to depress the world price by one cent it would reduce the amount received by American producers by $60,000,000, taking the 1932 crop as a basis. Reduction in the value of the carry-over as of July 1, 1932, would add another $45,000,000 to the loss. It would mean a loss of $15,000,000 on the cotton owned and controlled by the Farm Board. It also was pointed out that for a 1c. decline in the general world price level an increase of 2½c. would be necessary in the proposed adjustment payment to keep the farmer in the same relative position.

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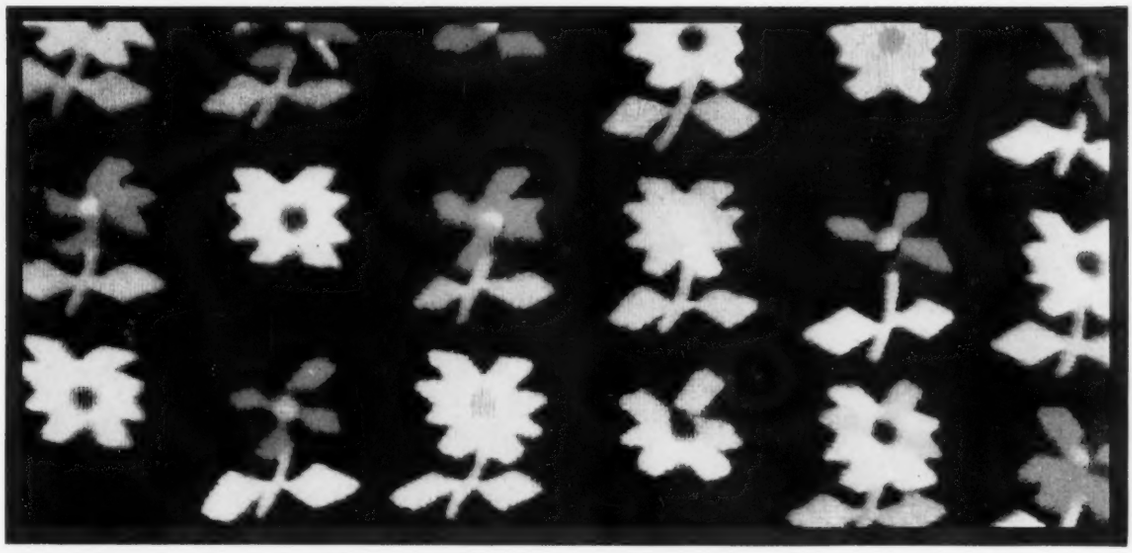
Another argument presented to the committee is that a restriction of 20% in the acreage does not necessarily mean a reduction in the amount of cotton produced. Fertilization and intensive cultivation easily could offset any such acreage reduction. It also is contended that there is no practical manner of determining the individual allotments. This is particularly true of cotton. More than half of the cotton produced comes from tenant farms. The farmer does not have an exact knowledge of the acreage he has planted in the past and, in any event, the estimate would be liberal.

The question also was raised as to the proportion of the benefit that would accrue to the actual producers. It is predicted that in the long run it would be an everlasting tax upon the consumers of the country for the primary benefit of the owners of farm real estate. This is said to explain the support which the measure is receiving from banks, insurance companies and others owning farm mortgages.

There also is a grave question as to the constitutionality of such a proposal which adds to the uncertainty surrounding the legislation.

This is written prior to final action by the House Committee on Agriculture which has been considering the plan ever since Congress convened. Despite all the objections that have been raised against the proposal, there is such a demand that something be done for farm relief that the prevailing opinion is that an experiment of this sort will be tried. Some are of the opinion that Congress will reduce the experiment to cotton and wheat as the outstanding crops with large exportable surpluses. There is a very general feeling that the plan could not be operated if the commodity is not on a definite export basis.

There is no thought that this legislation will be enacted at the short session of Congress. It would face an almost certain veto but the President-elect is on record as favoring substantially the domestic allotment plan. For that reason it is expected that some legislation of this type will be put through at the extra session.



Discharge print—the ground is dyed in the piece. The colored figures are produced with vat dyes in the discharge pastes

APPLICATION AND DISCHARGE STYLES OF

Silk Printing

By Walter M. Scott, Ph.D.

Dr. Scott, the author of the following article, has had wide experience in the silk dyeing and printing industry. He was formerly chief chemist for Cheney Bros. and is now a consulting chemist with Gustavus J. Esselen, 73 Newbury St., Boston.

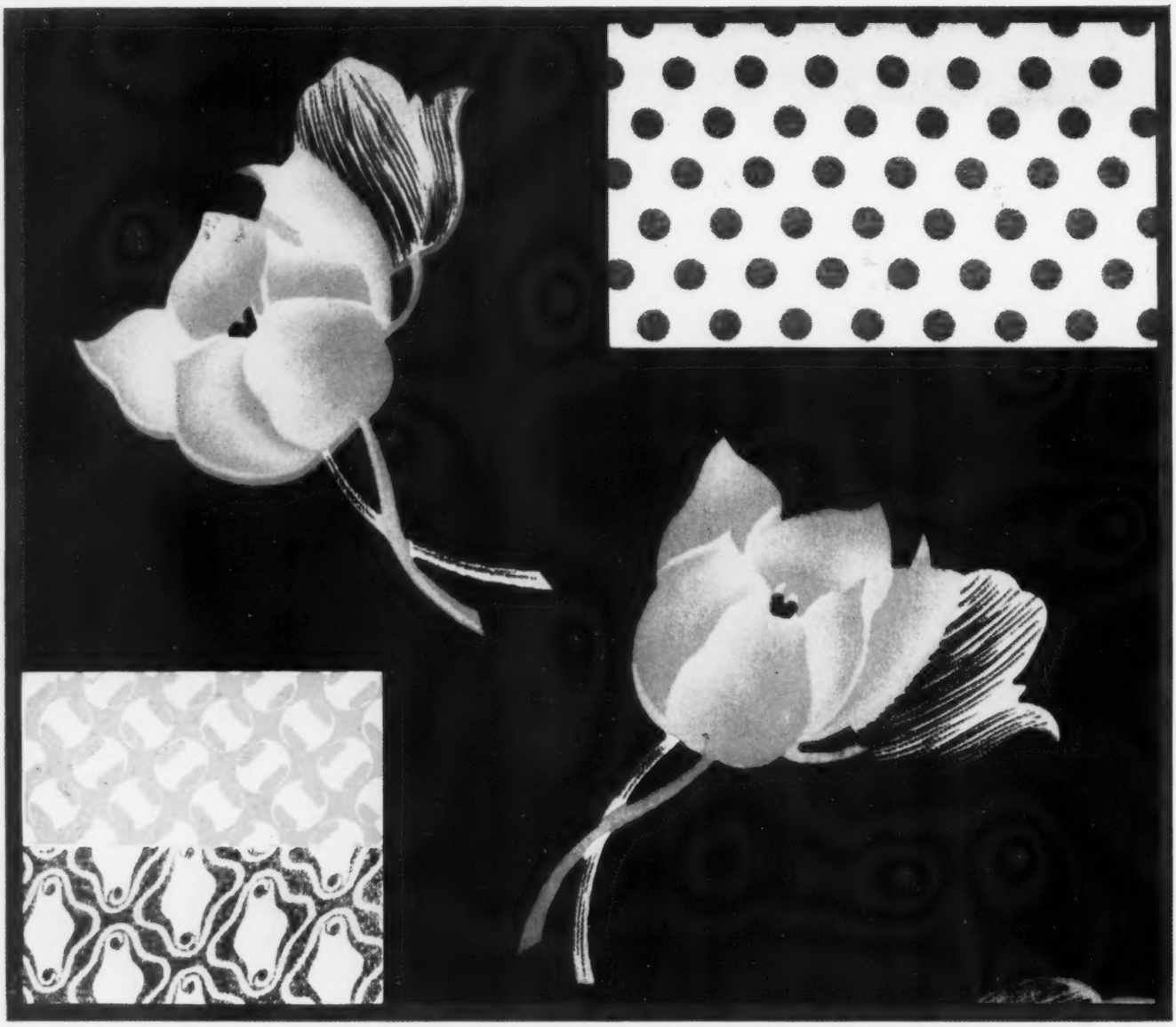
THE general technique concerned with the printing of colored designs on textile fabrics is substantially the same, whether the fabric be silk, cotton, wool, or rayon. And yet there is at least one unique feature connected with the design and execution of prints on silk; namely, that the greatest emphasis is placed on the production of striking color effects which will have the maximum appeal to the eye of the customer and conform closely to the dictates of the stylists and fashion creators. The question of the relative fastness of the colors to light and washing is usually a secondary consideration. Of course, if the desired effect can be produced with dyestuffs of superior fastness, so much the better. But on the whole it is considered more advisable to sacrifice somewhat in fastness rather than in vividness of color.

At the present time block printing has been almost entirely supplanted by the machine application of color to the silk from the depressed surfaces of engraved copper rolls. With this modern intaglio printing the silk printer normally has a choice of two methods to produce the patterns: (1) by the direct application of colors to undyed fabrics, generally referred to as application printing; and (2) by removing the color from certain portions of piece-dyed fabrics, usually called discharge or extract printing.

In the latter case suitable colors may be mixed into the discharging pastes to replace the discharged color of the dyed ground. If white discharges are desired, zinc oxide is sometimes added to intensify the white. Formerly a third method of printing, called resist printing, was somewhat in vogue. In this method the silk was first printed with certain materials which offered a resist to the absorption of dye from a subsequent dye bath in which the ground was dyed. Colored resists were produced by mixing suitable colors in the resist pastes. However, this resist method is little used in modern silk printing.

Theoretically the production of application prints on silk can be accomplished with any class of dyestuffs. In practice the acid, basic, and direct dyes are most commonly used, although the vat dyes are in some demand where special fastness qualities are desired. Mordant and sulphur colors have been printed on silk from time to time, but they have never acquired great popularity.

Acid dyes possess the advantages of normally good solubility in the concentrations required for the printing pastes, and excellent affinity for the silk fiber, which facilities their fixation on the fabric in the steaming operation. They are available in a wide range of shades of satisfactory brightness and usually possess fairly good fastness to light, but as a rule are not particularly fast to washing. Recently a special line of acid colors containing chromium, has been developed in Europe. These dyes are said to be particularly adapted for print-



Application print—both the ground and the figures are applied on the printing machine by means of engraved copper rollers. Upper right corner: Example of vat dye. Lower left: Examples of acid dyes.

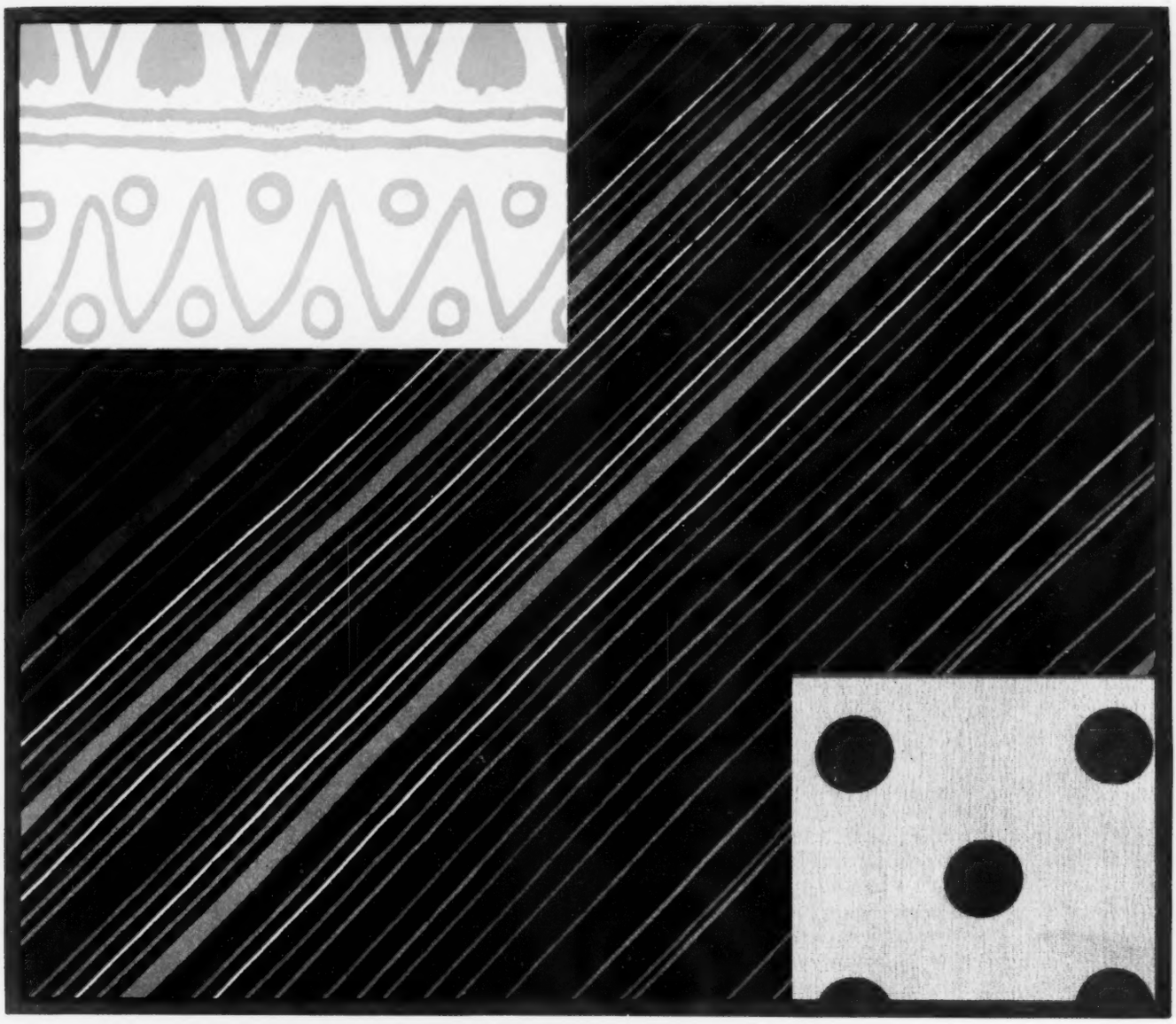
ing on silk when fastness to washing, as well as light, is desirable.

Basic dyes are not as readily soluble in water as the acid dyes, and usually a little alcohol is used to assist in obtaining clear solutions of the required concentration. These dyes are characterized by extreme brilliancy of shade and good fastness to washing, but they have relatively poor fastness to light. For silk printing the most satisfactory representatives of this class of dyes are the Phosphines, the Rhodamines, Brilliant Green, Victoria Blue, Methylene Blue, and Methyl or Ethyl Violet.

It is rather difficult to dissolve the ordinary direct dyes in sufficiently high concentrations for most printing purposes. However, certain members of this class are now available in concentrated types, and these have been used in silk printing with good success. The direct dyes possess good fastness to washing and relatively good fastness to light. However, as a class, they are somewhat duller in shade than the acid or basic dyes and require more steaming to effect complete fixation on the fabric. The following typical direct dyes are available in concentrations suitable for printing: Direct Blue 2B (C.I. 406), Direct Blue 3B (C.I. 477), Direct Orange R (C.I. 415), Chrysophenine (C.I. 365), and Direct Scarlet B and 3B (C.I. 382). It is possible to mix certain amounts of basic dyes with direct dyes in printing pastes and thereby increase the brightness of the shade.

Vat dyes must be dissolved for printing with the aid of a reducing agent, such as sodium sulphoxylate-formaldehyde, and an alkali, such as a mixture of caustic soda and soda ash. Usually a protective colloid is added to prevent any serious deterioration in the strength of the silk fabric by the strongly alkaline pastes. Vat dyes are characterized by particularly good fastness to washing and to light, but as a rule they are not as bright as the acid or basic dyes and are not susceptible to the production of a wide range of color combinations. A certain number of water-soluble derivatives of vat dyes have recently been made available. They may be incorporated in the printing pastes without the aid of a strong alkali and are subsequently developed by a combination of an acid and an oxidizing agent.

In discharge printing the choice of dyes is strictly



Discharge print—the ground is dyed in the piece; the colored stripes are produced with basic dyes in the discharge pastes. Upper left corner: Example of direct dye. Lower right: Example of basic dye.

limited to those which are not affected by the reducing agent used to discharge the ground color. The dyes which are commonly used for this purpose are Quinoline Yellow, the Phosphines, the Rhodamines, Methylene Blue, and at times Nile Blue. The grounds are sometimes dyed with dischargeable acid colors, but usually with readily dischargeable direct colors. As a general rule the acid colors can be discharged to a clearer white than the direct colors, but many of them tend to regain a portion of their color after being exposed to the air for varying periods of time. The direct colors do not return after once being discharged and are preferred for this reason.

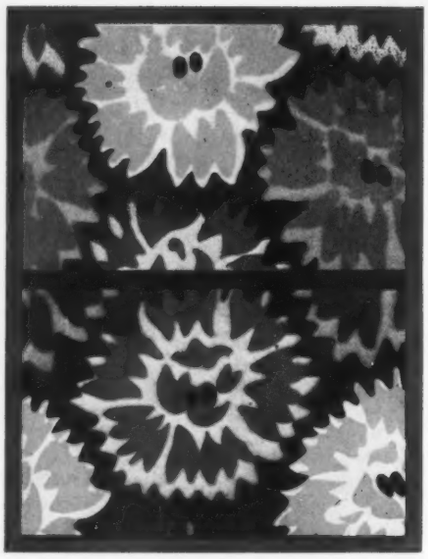
Discharge prints on silk made with direct color grounds and basic-color figures are reasonably fast to washing, but only moderately fast to light. The figures are more fugitive than the grounds in this respect. Because of the ease with which basic colors on silk can be faded by direct exposure to sunlight, there is a tendency among some manufacturers to over-emphasize the lack of fastness of discharge prints made with basic colors. As a matter of fact, such prints are, in general, satisfactory for many types of dress goods and also for men's neckwear.

Fastness of discharge prints can be considerably improved by substituting vat dyes in place of basic dyes in the discharge printing pastes. These dyes are dispersed and partially reduced in the alkaline hydrosulphite solution which forms the basis of the discharge paste. After printing they are completely reduced and fixed on the silk during the passage of the goods through an atmosphere of moist steam at an elevated temperature in the ager. Although much faster to light and washing than the basic dyes, there are several considerations which limit the use of vat dyes to relatively few special cases. For example, there is increased difficulty of dissolving vat dyes, applying them, and developing them satisfactorily; also increased difficulty of redying imperfect prints; finally extra cost of the dyestuffs themselves.

In a previous article on the dyeing of silk in the piece (TEXTILE WORLD, Nov. 7, 1931), the writer stated that the first essential is to obtain complete removal of the silk gum. This statement is just as true for printing as it is for piece dyeing. The usual procedure is to

immerse the gray silk fabrics in a boiling solution containing approximately 1% of neutral soap until the gum is entirely removed. The time varies with different types of fabrics and must be determined separately for each type. After the silk is removed from the boiling soap bath it is immediately washed —first in a hot alkaline solution containing a small amount of ammonia, soda ash, or trisodium phosphate; then in several changes of hot water.

When the silks are to be printed by the application method, they may be passed through a weak sulphuric acid solution (not over 0.25% in strength) immediately after washing and prior to drying. A small amount of acid in the goods assists the fixation of the dyestuffs and tends to brighten the shades. It is not detrimental to the direct dyes if only those colors which are not sensitive to acid are selected by the printer for his use. Of course, if the silks are to be piece-dyed, preparatory to printing by the discharge method, preliminary acid treatment is superfluous. After the silk pieces have been dried, it is advisable to condition them for a sufficient length of time to regain their normal moisture content. Much more satisfactory prints will thus be obtained.



Example of washable prints — Above original, below after washing test

At the present time many silk fabrics are weighted before they are printed. In this case, after the gum is removed, the pieces are immersed in a solution of tin tetrachloride, then washed and immersed in a solution of sodium phosphate. Alternating treatments in the tin and phosphate solutions may be repeated several times and a final treatment with sodium silicate may be given. Certain types of silk fabrics, such as crepe de Chine, are commonly weighted to as high as 150%; i.e., 50% above the original weight in the gum.

A common base for many printing pastes used in application printing is corn dextrin or so-called British gum. The chief requisite of this dextrin is that it be as free as possible from starch and other insoluble material. It is conveniently dissolved to a strength of 6 lb. to the gallon. Thickeners of the textile gum type are also frequently used. In the printing pastes themselves there must be a sufficient body of gum so that the color will not run after it is applied to the silk. For discharge pastes which are to contain a reducing agent, gum tragacanth or a suitable substitute is generally preferred as a thickening agent. The discharge hydrosulphite is most satisfactorily dissolved directly in the gum.

In making up standard color solutions the dyes are first dissolved in water and then mixed with the stock gum solution. The mixture is then strained through cheese cloth. Acid dyes are as a rule quite soluble in straight water. The standard solutions usually contain 4 oz. of an acid dye to 1 gal. of solution. Basic dyes are more difficult to dissolve and, as previously mentioned, are often first wet out with a little alcohol before adding the water. Because of their high tinctorial power they are commonly used in a concentration of 2 oz. to a gallon of the solution. As stated before, the more concentrated types of direct dyes are quite readily soluble in water, although a small amount of disodium phosphate may be added to assist the solution. The direct color solutions may contain as high as 8 oz. of dye to the gallon.

The individual standard dye solutions are combined in any proportions necessary to match the desired shades. Acid color solutions may be mixed with each other or with solutions of basic colors. Solutions of direct colors may also be mixed with each other or with basic color solutions. However, it is not advisable to mix acid color solutions with direct color solutions. In mixing different classes of dyestuffs great care must be exercised in the choice of dyes and method of mixing in order to prevent a precipitation within the color paste.

The question of complete solubility of the dyestuffs in the printing pastes is an important one. The obvious defect produced by a small amount of undissolved dye is specks of color in the finished prints. The less obvious but probably more serious defect of crocking may often be attributed to poor solubility of the dye in the printing paste. Straining lessens this danger to some extent, but the safest procedure is to make sure in the first place that the dye is properly dissolved in the most suitable solvent.

After printing, the goods are first dried and then steamed to develop the color and fix it on the silk. In the case of the application prints—particularly where there are relatively large areas of color—the goods are steamed with relatively dry steam under pressure. In general, the stronger the color, the more steaming is necessary in order to obtain the required penetration.

Discharge prints are preferably run through an ager in which the steam is circulated at a temperature of 214° F. and with a fair amount of moisture. If vat dyes are to be properly reduced and fixed, the steam should be at a temperature of 218 to 220° F. and the moisture content should be considerably increased, though not to the point where the color will spread or where water spots appear on the goods.

When the color is thoroughly fixed, the goods must be washed in order to remove the printing gum or dextrin. A thorough washing is essential if the natural softness and luster of the silk is to be retained. If a good quality of thickener has been used, it can be completely removed by cold water.

The method of washing depends to some extent on the character of the fabric. Some fabrics should be washed in the loose (rope) form to retain the characteristics of their construction. With many silks, satisfactory washing is obtained on some form of continuous machine operated on the counter-current system with devices for spraying fresh water against the goods.

In the case of vat-dye prints, the washing serves not only to remove the gum but also to oxidize and develop the color. Sometimes the oxidizing action is accelerated by the presence in the wash water of oxidizing agents, such as sodium peroxide or sodium perborate. The final brightening of the shades is usually obtained by a short immersion in a hot soap bath. After washing, the silk pieces are dried and finished according to the particular demands of the trade.

ADVERTISING PAGES REMOVED

THE PERSONAL PAGE

W. S. NICHOLSON, who resigned as president of Union Buffalo Mills Co. in September, on Jan. 1 became manager of the Excelsior Mills, Union, S. C., with which concern he began his textile career some years ago.

CHARLES A. SAXTON, president, Saxton Woolen Corp., Norwich, Conn., manufacturers of billiard and uniform cloths, has been re-elected president of the Norwich Manufacturers' Association. On the association's board of directors, elected for the coming year, are HERBERT M. HITCHON, treasurer and superintendent, Glen Woolen Mills, Inc., and C. J. TWIST, vice-president and treasurer, Thames Textile Co.

W. C. PLUNKETT of W. C. Plunkett & Sons Co. has been elected a director of the Berkshire Fine Spinning Associates, North Adams, Mass.

COL. HENRY G. HESTER, the father of cotton statistics, aged 86, retired on Dec. 7 after 61 years service as secretary and superintendent of the New Orleans Cotton Exchange. He was honored with the title of secretary-emeritus. He is succeeded by Henry Plauche who assisted him for many years.

D. B. COLTRANE, president of the Kerr Bleaching & Finishing Works, Inc., Concord, N. C., was honored at a dinner of the Concord Rotary Club, of which he is an honorary member, Dec. 23, the occasion commemorating his 90th birthday.

W. A. ENLOE, president of the La Fayette (Ga.) Cotton Mills, and president of the Bank of La Fayette, has just been elected mayor of that city for his tenth consecutive term and without opposition.

CLARENCE H. TAYLOR was elected president of the Eastern Connecticut Mills Association at the annual meeting Dec. 20 at Wauregan, Conn. He succeeds EDWARD W. SMITH, who presided over the session. Other officers were named as follows: First vice-president, HARRY GREENE, Quinebaug Co.; second vice-president, EDGAR H. KENNEDY, Bay Co.; third vice-president, ALLAN MOFFITT, Wauregan Co.; fourth vice-president, HARRY W. PRENTICE, Ponemah Mills Co.; secretary and treasurer, PRENTICE W. CHASE, Ashland Corp., who is serving his eighth term.

GEORGE W. WILCOX, whose resignation as president of Combine Hosiery Corp., Philadelphia, was reported last month, has been made president of Pennsylvania Silk Hosiery Mills, Easton, Pa., in charge of sales. His office will be in New York.

R. O. LINDSAY, for nearly 30 years identified with the hosiery industry in High Point, N. C., and recently vice-president in charge of sales of Adams-Millis Corp., retired from his active connection with the company at the end of the year, though still retaining his office as vice-president and director. R. M. BUNDY succeeds in charge of sales. Mr. Lindsay remains as president of Guilford Hosiery Mills.

EDWARD J. MCMILLAN, vice-president of Standard Knitting Mills, Knoxville, Tenn., is slated to succeed his father the late EDWARD E. MCMILLAN, as president.

J. L. HODGES has been elected president and sales manager of the British-American Silk Mills, Ltd., Montreal, Canada; G. H. SHUTT, vice-president and production manager. Both men were formerly with Brupbacher Silk Mills, Ltd.

MALCOLM G. VAN ARSDALE has resigned as head of Van Raalte Co., New York, and IRVING K. HESSBERG will act as temporary head of the business.

L. P. WOOD, Atlanta, Ga., has been made sales representative of the Mill Associates in the Southeast. He will also carry the lines of the Muscogee, Pelzer and Tucapau mills.

JOHN NASH MCCULLAUGH who resigned several important connections with the industry in November as reported in our last issue, continues as a director of Tubize-Chatillon Corp.

GEORGE T. KEYES has resigned as vice-president of B. B. & R. Knight, Inc., and as general manager of Fruit-of-the-Loom Mills, Inc., to become general manager of the Donnelly Garment Co., Kansas City, where he will make his headquarters. W. S. SPATCHER and S. BRUCE SMART have been elected vice-presidents of Fruit-of-the-Loom Mills.

ALBERT GEE, vice-president and assistant manager of Hancock Knitting Mills, Philadelphia, has resigned. He was associated with W. PARK MOORE for many years in this enterprise. Mr. Moore resigned several months ago and A. E. MARGERISON is now general manager.

CONYERS READ, former treasurer and later president of William F. Read & Sons Co., Philadelphia, woolens and worsteds, has been appointed professor for English history at the University of Pennsylvania beginning February, 1933.

FRED C. HALL, general superintendent of the cotton department of Amoskeag Mfg. Co., Manchester, N. H., has resigned.

C. L. CHANDLER, superintendent of the Gaffney Mfg. Co., Spartanburg, S. C., for 15 years, has resigned to become associated with the Jackson Mills, at Wellford and Iva, as general manager and vice-president. O. A. SULLIVAN, assistant superintendent at the Gaffney plant, will succeed him.

ALEX WEISS has joined the Cretona Print & Dye Works, Clifton, N. J., as executive in charge of sales promotion.

R. W. CHASE, formerly with Van Raalte Co., as sales manager has joined the sales organization of Berkshire Knitting Mills. Mr. Chase is well known as a hosiery and underwear merchandiser and was with Van Raalte for four years.

CELESTIE D. PEROTTI has been engaged by the Columbia Silk Throwing Co., R & G Silk Throwing Co. and S & S Silk Throwing Co., Bloomsburg, Pa., to take charge of their new laboratory which will furnish users of hosiery and crepe materials with inspection, conditioning, boil-off and other essential tests. Mr. Perotti was for the last 12 years associated with the Dorranceton Division of the Duplan Silk Corp.

HANS BUSCHER, for the last four years superintendent of La France Plushes, Ltd., Woodstock, Ont., Canada, has resigned from his position to become general manager of Avalon Fabrics Ltd., a United States plush manufacturing firm which has taken over the vacant factory building of Automatic Products Ltd., Stratford, Ont.

R. H. HOMMEL, a member of the board of directors of Mercury Mills Ltd., Hamilton, Ont., has been appointed vice-president and general manager of the company.

MISS ROSE WARREN, who has been associated with the Fabric Development Department of DuPont Rayon Co. for five years as a stylist, has resigned to become an independent stylist specializing in rayon fabrics. MISS EUREY. is assuming Miss Warren's duties.

Obituary

CHARLES H. FISH, aged 72, a former president of the National Association of Cotton Manufacturers and at various times in charge of some of the largest textile enterprises in New England, died in Brookline, Mass.

CHESTER W. LASELL, aged 71, for the last 15 years president of Whitin Machine Works, Whitinsville, Mass., died Dec. 17 after several months of ill health. He entered the Whitin works in his early youth and worked up. He is the uncle of John W. Lasell, also active in the company.

MALCOLM D. WHITMAN, aged 58 years, president of Nashawena Mills, New Bedford, Mass., and vice-president of William Whitman Co. died as result of a plunge from the pent house of his New York home on Dec. 28. He had been under treatment for a nervous breakdown for several weeks. He was American tennis champion in 1898 to 1900 and member of the first Davis Cup Team. He served a term as president of Association of Cotton Textile Merchants.

ALBERT W. DIMICK, 62 years old, secretary-treasurer of the Grosvenor-Dale Co., North Grosvenordale, Conn., died at his home in Providence, R. I., on Dec. 18, after a heart attack. He had offices in Providence. Besides connection with Grosvenor-Dale, Mr. Dimick was president and director of the Warren Mfg. Co.; and a director of the Apponaug Co., of the Providence Dyeing, Bleaching & Calendering Co. He was a member of the Trust Co. He was a member of the National Association of Cotton Manufacturers and a founder of the Southern New England Textile Club.

JAMES T. MILNE, aged 87, for some years before his retirement treasurer of Osborn Mills, Fall River, Mass., is dead.

C. M. DELAND, aged 65, head of C. M. DeLand & Co., women's wear woolens, New York, died Dec. 11.

JAMES P. TOBIN, president of Holyoke (Mass.) Worsted Mills, Inc., died in Holyoke, Dec. 21, after a short illness. For nearly 30 years he was superintendent of the dye works of Germania Mills.

HENRY PRUNARET, president of the Flagstaff Silk Co., Mauch Chunk, Pa., died at Catasauqua at the the age of 73.

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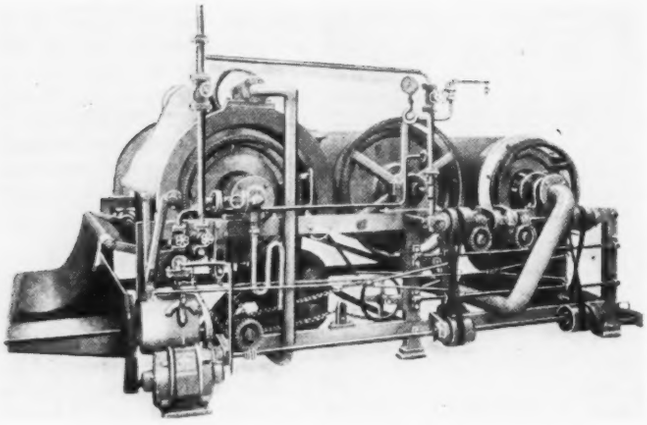
A memorial tablet to the late JOHN PENMAN, Canadian textile manufacturer, was unveiled Dec. 14 in Paris, Ont., headquarters of Penmans, Ltd. Mr. Penman, who died Oct. 19, 1931, was a resident of Paris for 63 years.



Continuous Shrinking Machine

DEVELOPMENT of the Windsor No. 7 continuous shrinking machine is announced by A. W. Buhlmann, 200 Fifth Ave., New York. This machine was designed primarily for the woolen and worsted industry to shrink fabrics to the absolute maximum in length and width, but is also suitable for shrinking other textiles, especially rayon linings and mixed fabrics.

With the Windsor No. 7, the cloth passes over an introductory roller with adjustable circumferential speed. A special expanding arrangement removes creases and wrinkles from the fabric, and the cloth enters the steaming cylinder smooth and without tension. Over the steaming cylinder an endless felt is arranged, which transports the cloth without tension. The felt also prevents rapid escape of the steam coming out of the cylinder through perforations, so as to retain as much as possible of the steam in the fabric. This felt also prevents too much raising of the nap. By regulating the amount of steam, which is used at a very low pressure, various degrees of saturation of the fabric are obtained. The fabric coming out of the steam cylinder falls on a heatable drying plate; then passes on to the drying cylinder. A second heating plate is arranged between the drying and the final cooling cylinder.

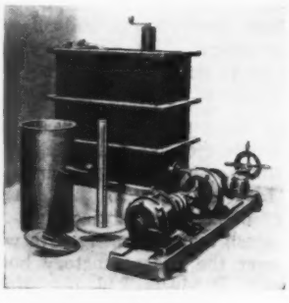
These drying plates serve to guide the fabric in its passage from one cylinder to the other, thereby eliminating any stretch. In this way they prevent lengthwise streaks in the fabric. Also, they give positive regulation of the shrinking process, as the three shrinking organs—heating plate, shrinking cylinder, and second heating plate—can be set independently at different temperatures. The purpose of the cooling cylinder, which is connected with a powerful turbine blower, is to return to the fabric a full handle and life. The machine permits a speed variation from 2½ to 10 yd. per minute.

Shuttle Eye

DEVELOPMENT of a new shuttle eye, designated the "K" eye is announced by U. S. Bobbin & Shuttle Co., Manchester, N. H. It is stated that the eye is a quick, positive, sure threader; that it cannot unthread; and that it will shed a loop over the back or point. Since the eyes are made from a die-casting and are machined on precision machinery holding tolerances within close margins; interchanging of eyes is made possible. The eye is supplied in a new chrome finish and with various types of tensions.

Haveg Dyeing Equipment

ANNOUNCEMENT was made recently that H. W. Butterworth & Sons Co., Philadelphia, will be exclusive distributor in the textile industry for Haveg, a corrosion-resisting material which has found wide use in Europe. Haveg, which was introduced in Germany about eight years ago, will now be manufactured and marketed in this country by the Haveg Corp., Newark, Del. (affiliated with the Continental Diamond Fibre Co.). This material is produced by combining a selected asbestos base with a modified form of phenol-formaldehyde type of resin. This in turn is moulded into a compact mass, providing a material which is said to be completely resistant throughout its structure. In the mould the mass is subjected to heat and pressure, and formed into a single solid piece of the shape and size desired. Up to the present Haveg tanks have been made as large as 10 ft. in diameter, and 10 ft. in height.

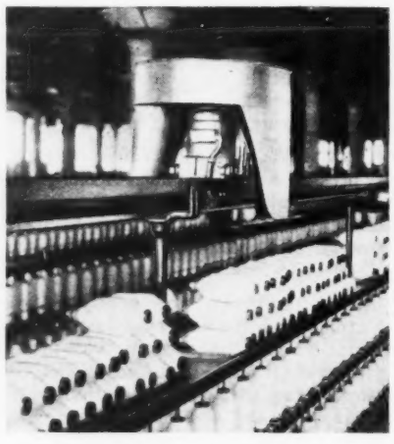


Haveg is about one-fifth the weight of iron and about one-half as heavy as aluminum. The manufacturers state that it will withstand shocks and blows remarkably well and that it does not chip or fracture easily. It has a compressive strength of 10,400 lb. per sq.in. It is stated also that temperature changes apparently have little or no effect on the new material; the regular grade can be used up to 265° F. Again, since Haveg is non-absorbent, tanks, vats, and kettles made from it can be flushed out with a hose and water. One advantage claimed for Haveg is that due to its low co-efficient of heat conductivity, Haveg equipment enables steam savings ranging from 20% to 50%.

Acids to which Haveg is resistant, listed by the manufacturer include acetic, fatty, formic (up to 40%), hydrochloric, lactic, oxalic, phosphoric, sulphuric (up to 50%), sulphurous, tannic, and tartaric. Also are listed 8 bases, 7 solvents, and 32 salts and other chemicals. The list is further augmented by several other acids, and compounds, to which a special grade, known as Haveg 43, is resistant. The regular grade is known as Haveg 41.

Traveling Cleaner

A TRAVELING cleaner for removing lint, fly, and dust from all types of cotton spinning frames has been developed recently by Parks-Cramer Co., Fitchburg, Mass. The unit consists of a small motor, fan, and carriage which travel along a double steel-rail track mounted on the creel board of the spinning frame. Tracks are extended full length of one to six or more frames, according to desired frequency of cleaning. Two currents of air—one on each side of frame—are created by the fan unit. At each end of traverse, motion is



reversed automatically. Thus the cleaner moves continuously back and forth, subjecting exposed surfaces periodically to blasts of air.

It is designed to clean thoroughly all surfaces above the ring rail, including creels, roving bobbins, clearer boards, thread boards, and front and rear guides. Air currents blow accumulated fly outward and downward to floor, whence it may

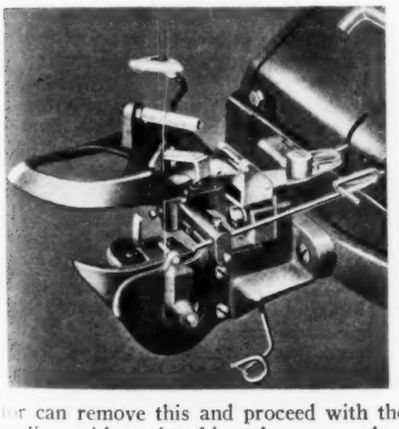
easily be removed. Continuous action of cleaner minimizes accumulation of lint and fly on surfaces of frame. Collections on overhead pipes, beams, ceiling, etc., also are greatly reduced. Motion of the unit itself along frame—first in one direction and then in the other—alters the directions of air streams, causing the air to clean from different angles, depending upon direction of travel of unit.

Construction of the unit is rugged and reliable. The track becomes a rigid part of machine to which it is attached. There are no supports from ceiling, no overhead track, and nothing above the cleaner where lint and dirt might accumulate. The entire mechanism can be reached from floor. It is fully protected from mechanical injury and accidental contact, so that no hazard is involved in its use.

Among the advantages claimed for the cleaner are that it saves a large portion of labor required for cleaning, and improves the quality of yarn by preventing accumulations of lint which cause slugs or gouts when picked up by yarn. The cleaner is said to be particularly useful on long-draft frames, on account of the greater amount of fly and lint prevalent. A modified hood and more powerful air delivery are needed in the case of long draft. The Park Spray traveling cleaner may also be applied—with certain modifications—to winders, warpers, and twisters.

Slub Trap

A NEW slub trap designed to control mechanically the removal of knots, bunches, or slubs from worsted yarn during the process of winding has been announced by the Universal Winding Co., Boston, Mass. Each single yarn is controlled by a slub trap adjusted in such a manner that any defect in the yarn larger than the adjustment will automatically stop the yarn with the imperfection directly in front of the operator. If an accumulation of lint on the yarn causes the stopping, the oper-



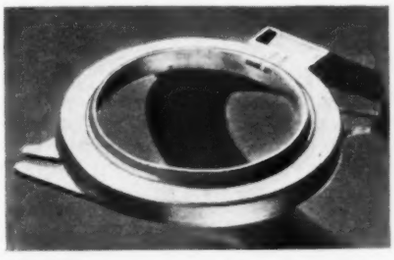
ator can remove this and proceed with the winding without breaking the yarn. Any imperfections passing to the slub trap, and which would prove defective and not pass inspection in the burling room, can be removed in the process of winding. The new process is said to be not only economical in the yarn inspection, but of even greater value in the burling room. The slub trap attached to the spindle of a cone winder provides an over-end delivery from a package containing 2 lb. of yarn.

Vertical Ring for Silk Twisters

FOR use on silk twisters, Whitin Machine Works, Whitinsville, Mass., has placed on the market a new type of raised holder and an automatically lubricated vertical ring. The raised holder makes possible the building of larger packages without the expense of re-boring existing ring rails, since a vertical ring as large as the ring rail hole can be employed. The holder is fastened on top of the ring rail and is designed to fit exactly in the position of the holder it replaces. No machine work is required when these holders are applied.

To eliminate greasing or oiling by hand, reservoirs are incorporated in the raised holders from which a wick extends through holder and ring to the inside wall of the latter. From this wick capillary action and the vacuum created by the traveler evenly distributes the oil around the ring. Any stainless oil which does not flow too freely may be used with these auto-lubricating rings.

While vertical rings of any approved type and depth can be used successfully,



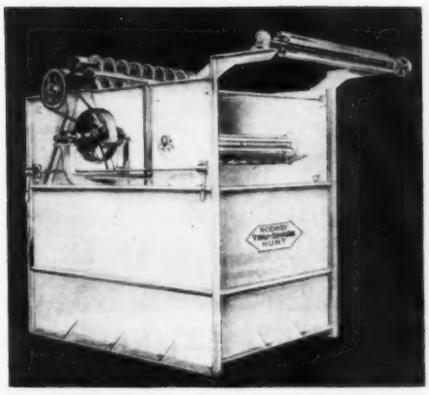
Whitin Machine Works has developed a ring of special design which is said to be notable for the lightness of tension on the traveler and extremely small amount of lubrication required. These rings, known as Crys-steel special vertical rings, are supplied on all orders for Whitin Auto-lubricating silk throwing rings unless otherwise ordered.

Advantages cited for the new rings are as follows: The spindles can be run at much higher speeds; the travelers do not have to be removed when an end is pieced up; the travelers last longer; the travelers do not bend, thus insuring an even traverse at all times; the work is much cleaner; rings can be lubricated while the machine is in motion. It is stated also that these vertical rings can be used with equal advantage by any mill spinning cut staple rayon or rayon waste.

Improved Dyeing Equipment

SERIES 33, Tru-Shade dye kettles and bleaching machines are the latest development in all-metal equipment manufactured by the Rodney Hunt Machine Co., Orange, Mass. These new machines combine the basic features of the older types of Tru-Shade equipment with additional features which add to their advantages.

One of the most revolutionary improvements in the new series is the elimination of both cast-iron and steel side frames and steel plate. All vital parts of the machine



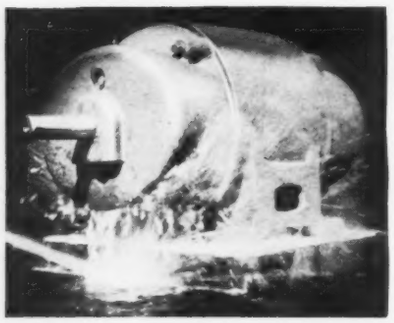
—both inside and outside—are now constructed of the stainless alloy formerly employed only for the tub portion of the kettle. In addition, the new machines, as will be seen from the accompanying illustration, are self-supporting. An important feature of the older model which has been retained is the convertible hump and bar reel. Removable humps permit the reel to function either as a hump or bar reel, which permits the processing of a wide range of fabrics. Many other type reels are available to suit any fabric—oval, triangular, round, etc.

Another big improvement in the latest type machines, is that the reels are provided with a variable-speed drive which allows instantly changeable speed of reel. This variable speed control also includes the usual simple clutch control. This exclusive feature is standard on all Series 33 Tru-Shade machines, whether belt or motor drive. Bearings throughout are of the anti-friction or oilless type, as desired.

In the Series 32 machines, high stainless-metal splash sides are incorporated as a part of the machines themselves. These splash sides are provided for easy canopy connections, if desired. From the dyeing standpoint, the improved machines have the same characteristics as the older models. From the time the first Tru-Shade kettles were introduced, the manufacturers have stated that these machines offer the nearest approach to glass-beaker dyeing which is commercially available and that practically all types of dyes can be handled without affecting the shades and without affecting the metal itself. Extensive mill use is said to have confirmed this statement and to have shown also that the installation of Tru-Shade machines has resulted in noteworthy savings in time, steam, hot water, and labor.

Splash-Proof Motor

BUILT in the same dimensions as standard open motors, a splash-proof motor has been announced by the Louis Allis Co., Milwaukee, which it is claimed will prevent entrance of water splashed with great pressure from any angle. This protection against splashing water is provided by a double baffle in an elliptical-shaped air passage in each end-bell. This unusual construction, according to the makers, permits free passage of ventilating air, but traps and drains water splashed into the air openings at the bottom of the elliptical-shaped chambers. The shaft



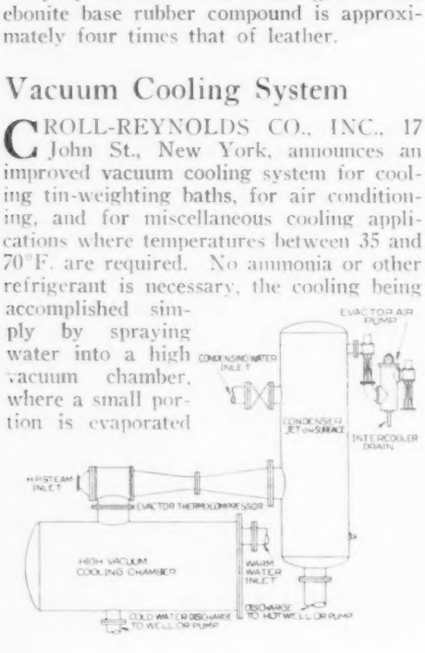
guard has been designed to break the force of a stream directed along the shaft extension and thus prevent water from entering the bearing chamber. The accompanying illustration shows the motor operating at 1,800 r.p.m. while water is being forced against it from various angles.

Vulcanized Rubber Loom Accessories

DENMAN TIRE & RUBBER CO., Warren, Ohio, has developed a line of rubberized fabric loom accessories, including pickers, parallel blocks and bumpers. The construction of these products is based upon the natural affinity of rubber for cotton fiber, thus providing the toughness, resiliency and long wearing properties commonly associated with tires, boots and other articles composed of rubber and fabric. The cotton material used is a 14-oz. chafer fabric. All parts are vulcanized in closed steel molds under exactly uniform conditions. The rubber compounds used in these parts are said to be selected primarily because of their extreme high resistance to shock, the tendency to flow slightly under severe impact, the absence of brittleness, and their excellent ageing properties. Parallel blocks are made with the ebonite base compound, hardened instead of softened, and are specially compounded to resist oil and to eliminate the tendency to chip. The company states that the strength of the ebonite base rubber compound is approximately four times that of leather.

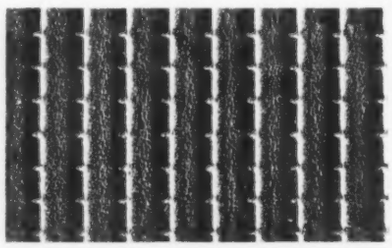
Vacuum Cooling System

CROLL-REYNOLDS CO., INC., 17 John St., New York, announces an improved vacuum cooling system for cooling tin-weighting baths, for air conditioning, and for miscellaneous cooling applications where temperatures between 35 and 70°F. are required. No ammonia or other refrigerant is necessary, the cooling being accomplished simply by spraying water into a high vacuum chamber, where a small portion is evaporated and balance cooled at expense of heat of evaporation. Evaporation of 3% of the water produces a cooling effect of 25°F. The equipment has no moving parts other than a small circulating pump. The manufacturer states that in addition to its comparatively low initial cost, the operating cost of this type of equipment is negligible, due to the fact that the steam which produces the vacuum is all condensed and its heat transferred to condenser water where it is available for miscellaneous hot water requirements.



Non-Skid Leather Belt

VIM-TRED, a new type of leather belting, has been placed on the market recently by E. F. Houghton Co., Philadelphia. This new belt has a non-skid surface produced by pressing down or indenting



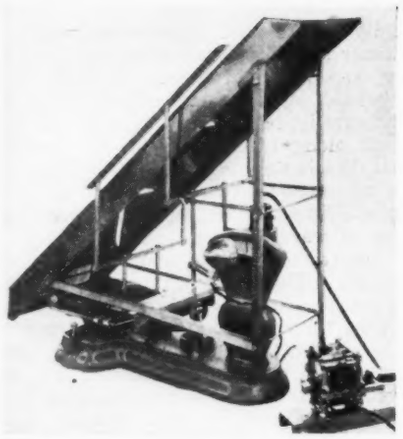
part of the surface of the belt. This construction is said to concentrate the pressure between the belt and the pulley on the ribbed tread and consequently to increase the gripping power of the belt, without increasing the total tension of the drive.

Single-Unit Full-Fashioned Hosiery Machine

UNDER erection in Philadelphia is the first Kalio "Complet" single-unit full-fashioned hosiery machine to be brought to this country by Louis Hirsch Textile Machines, Inc., 48 West 34th St., New York. After operation in several European mills under various conditions for a considerable time, the Hirsch organization feels justified in announcing that the new machines are capable of producing commercially a stocking with French gusset heel and diamond-point toe which cannot be distinguished from a leggerfooter stocking. The machine is protected, it is announced, by over 100 patents, granted and pending.

The "Complet" machine is automatic with the exception of only the following essential manipulations by the operator: turning the welts, cutting the threads, taking off the weights, engaging the thread carriers, resetting the narrowing machine, and opening and closing the instep mechanism. Recent improvements in Kalio machines, including the "Complet" particularly, are high-speed design, specially shaped needles for improved stitch, hook knocking-over bits movable both vertically and horizontally, improved jackhead to prevent sinker smashes, automatic control for frictions, and individual section needle bars.

It is also reported that the new "Complet" machine is equipped with numerous safety devices designed to make the control fool-proof and so to avoid faulty operation.



Cotton Weighing "Auto-Gage"

FOR weighing cotton bat, feathers, waste, steel wool and similar products, an automatic device has been developed by Toledo Precision Devices, Inc., Toledo, that operates continuously after the starting button has been pressed. There is a micropoise counterbalance which can be set to cut off the desired weight of material on the pan. This is controlled by a photoelectric tube which disengages a clutch that in turn stops a set of rollers through which the cotton must pass before running onto the scale pan. Since a second set of rollers keep revolving, the cotton is torn apart at the proper weight, and is forced into a conveyor by a sharp blast of compressed air. The cutting mechanism may be a drop knife, if desired, while the dimensions of the pan and speed of the machine may be varied to suit conditions.

General Equipment

ALSO of interest to the textile field are the following improvements in general industrial equipment:

Fluid Meters. Bailey Meter Co., Cleveland, Ohio. Meters for measurement of steam, gases, water, and other fluids.

Recording Hygrometer. The Bristol Co., Waterbury, Ct. The Humidigraph, a direct-reading instrument which gives direct readings of relative humidity or of relative humidity and temperature.

Gas Engines. Worthington Pump & Machinery Corp., Harrison, N. J. Improved line of vertical four-cycle gas engines, built with one to eight cylinders and 30 to 150 hp. per cylinder, which have the advantage of being easily convertible to Diesels at moderate expense.

Thermostatic Steam Trap. C. J. Tagliabue Mfg. Co., Brooklyn. Improved steam trap equipped with a differential setting feature for adjusting the closing point to any pre-determined temperature. Particularly adaptable for applications on steam separators, heating coils, cooking kettles, unit heaters and for condensate and air relief on retorts.

Stoker-Unit. Combustion Engineering Corp., New York. Small stoker-unit, similar in principle to Type E, for application to both heating and industrial boilers ranging from 40 to 150 developed boiler horsepower.

NEW PUBLICATIONS

YARN DIAMETERS AND CLOTH STRUCTURE; By Thomas Woodhouse, F. T. I., and Alexander Brand, A. T. I.; Macmillan Co., New York, $2.75.

It is a foregone conclusion that any book carrying in its list of authors the name of Thomas Woodhouse, well-known textile authority formerly in charge of weaving and designing at Dundee Technical College, is an original and worth-while contribution to textile literature. Mr. Woodhouse has been ably assisted by Mr. Brand, whose connection as chief draftsman with Douglas Fraser & Sons is no doubt largely responsible for the remarkably clear and informative diagrams which this volume boasts. The treatise is mainly a collection of the serial articles which the authors have contributed to TEXTILE WORLD in recent years, and is particularly serviceable in showing designers and fabric technicians how they can easily and accurately determine in advance the number of ends and picks necessary to produce satisfactory fabrics of various types. It is based on exhaustive research and experimentation covering a period of 20 years.

COTTON YEAR BOOK, 1932; New York Cotton Exchange, New York; compiled by Alston H. Garside; 234 pages.

The usual comprehensive presentation of statistics of world supply and distribution of American and foreign growths of cotton, together with other statistical data of interest to those who handle cotton, is contained in the fifth Cotton Year Book. The book also contains a "cotton report calendar" for 1933, in which are listed all important cotton trade reports scheduled by Governmental and private agencies, and an explanation of statistical terms used by the cotton trade.

THE LACE BOOK; By Jessie F. Caplin; The Macmillan Co., New York; 166 pp.; illustrated; $2.75.

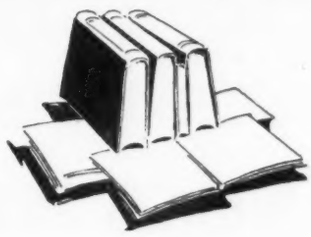
Lace technique and identity are clearly set forth in this volume. Machine made laces are described more fully than usual and characteristics of various kinds of laces, both machine and hand made, are given. Illustrations have been carefully chosen to display the distinguishing elements. Manufacturers, importers, retailers, machinery makers, trade and fashion magazines, and museums have been consulted by the author in assembling her material. Miss Caplin is instructor in textiles, University of Minnesota.

COMMERCE YEAR BOOK, 1932, Vol. I; U. S. Government Printing Office, Washington, D. C.; $1.25.

The tenth number of this year book gives the usual detailed data concerning business conditions in the United States and its noncontiguous territories and possessions. Statistical information in most cases covers the years 1921-1931 inclusive.

THE PHILADELPHIA UPHOLSTERY WEAVING INDUSTRY; By C. C. Balderston, R. P. Brecht, M. Hussey, G. L. Palmer, and E. N. Wright; University of Pennsylvania Press, Philadelphia; 231 pp.; $2.50.

This volume is the twentieth in a series of research studies put out by the In-



dustrial Research Dept., Wharton School of Finance and Commerce, University of Pennsylvania, with which the authors are associated. The study covers the wage dispute of 1930-31 and its outcome, history of the industry, survey of its collective bargaining, earnings and working opportunity, production, marketing, financial data and recommendations resulting from the survey.

THE DEVELOPMENT OF AMERICAN INDUSTRIES; edited by Glover and Cornell; Prentice Hall, Inc., New York; $5.

This symposium outlines the history, manufacturing and merchandising methods, and possible future developments of 39 major industries. The book, which is an outgrowth of a series of lectures given at New York University, is planned primarily for use in colleges and schools of engineering and of business administration, but is intended also to be of value to the business man. Although two chapters of the volume are devoted to textiles, unfortunately no consideration is given to wool, silk, rayon, or knit-goods manufacture, discussion being confined to the cotton manufacturing branch of the industry.

INDUSTRIAL MANAGEMENT IN THIS MACHINE AGE; By Francis A. Westbrook; Thomas Y. Crowell Co., New York; $3.50.

After stating that modern industrial life has presented management with problems that must be met with modern weapons, Mr. Westbrook presents what might be called a manual of successful managerial practices. Sales, research, engineering, purchasing, production, maintenance, costs, budgeting, employer-employee relations, distribution and organization are among the topics covered.

The use of examples adds interest to the volume and enables Mr. Westbrook to avoid the pitfall of involved technicalities. The textile reader will find numerous references to textile and allied concerns, the organization of the Kendall Co. being set forth in considerable detail.

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Business Literature

Cones and Tubes. Sonoco Products Co., Hartsville, S. C. Catalog of Socono paper cones, tubes, cores, clearers, bottle bobbins, dyeing tubes and spools, illustrated in colors, containing tables showing dimensions, specifications and specific applications.

Temperature Controls. Foxboro Co., Foxboro, Mass. Bulletin showing industrial applications for single-action and duplex temperature controls. Includes engineering data and descriptions of valves, lubricators, compressors and accessories.

Stainless Steel. Electro Metallurgical Co., New York. Illustrated booklet on stainless steels and their uses.

Emulsifying Agents. General Dyestuff Corp., New York. Bulletin describing applications for "Igepon" in the washing of greasy wools.

Laminated Synthetic Material. Continental-Diamond Fibre Co., Newark, Del. Illustrated booklet containing engineering data and descriptive material on "Dilecto," a laminated synthetic resinous product.

Spindles. Whitin Machine Works, Whitinsville, Mass. Bulletin describing the materals, manufacturing methods and use of spindles for twisting and spinning.

Paint. The New Jersey Zinc Co., New York. Pamphlet showing laboratory tests on the use of paint as aids to lighting.

Dye Jigg. Rice, Barton & Fales, Inc., Worcester, Mass. Illustrated pamphlet describing improved dye jigg.

Finishing Machinery. The Philadelphia Drying Machinery Co., Philadelphia. Pamphlet describing new "Hurricane" machines, including raw stock dryers, yarn dryers, extractors, tenter dryers and cloth carbonizers, for wool and worsted fabrics.

Clearer Cots. A. C. Lawrence Leather Co., Peabody, Mass. Circular with sample illustrating "Clearapelt" cots made of virgin wool.

Water Softeners. The Permutit Co., New York. The application of Zeolite water softeners to the treatment of boiler feed water. Booklet is illustrated with pictures and diagrams and contains tabulated data, conversion tables, factors, reactions, etc.

Industrial Rubber Goods. B. F. Goodrich Rubber Co., Akron, Ohio. Engineering data on transmission belting, conveyor belting, air and water hose, fire protection and steam hose, oil and gasoline hose, hose fittings, rubber tubing, soft rubber bearings, acid resisting paint, rubber cements and miscellaneous rubber products.

Stoker-Unit. Combustion Engineering Corp., New York. Pamphlet illustrating the construction and operation of the manufacturer's Type "E" Stoker-Unit.

Industrial Scales. The Kron Co., Bridgeport, Conn. Bulletin describing the manufacturer's completely redesigned line of automatic industrial scales, including dial track scales, portable pan, portable platform, dormant platform, bench, hopper, crane and pitless suspension types.

Pumps. DeLaval Steam Turbine Co., Trenton, N. J. Reprint from *Power*—"Efficient Suction Head for Centrifugal Pump Operation." Engineering data is included.

Loom Harness. Steel Heddle Mfg. Co., Philadelphia, Pa. Bulletin showing improvements in loom harness equipment.

Oils. General Dyestuff Corp., New York. Circular describing the characteristics and use of "Igepon A" and "Igepon T" in the spinning of worsted, woolen and union yarns.

Cranes. The Bucyrus-Erie Co., South Milwaukee, Wis. Illustrated booklet describing the Loadmaster portable crane and its applications.

Belting. B. F. Goodrich Rubber Co., Akron. "Lubricated With Rubber"—a booklet on Highflex belting.

Gas Engines. Worthington Pump & Machinery Corp., Harrison, N. J. Bulletin describing horizontal four-cycle double-acting engines.

Preheaters. The Air Preheater Corp., Wellsville, N. Y. Circular on the design and performance of Ljungstrom air preheaters.

Fade-Ometer. Atlas Electric Devices Co., Chicago. Bulletin describing new type Fade-Ometer and some of the applications for such a device.

Fluid Meters. Bailey Meter Co., Cleveland, O. Booklet covering the design and installation of new line of fluid meters.

Hoist Motors. General Electric Co., Schenectady, N. Y. Specifications and rating tables for G-E totally enclosed small a.c. Type KR hoist motors.

Rubber Paints. B. F. Goodrich Rubber Co., Akron, Ohio. This bulletin, the title of which is "Acidseal Paints," explains rubber derivatives that minimize the corrosive action of acids and alkalis, and dis-

cusses the selection of paints, methods of application, ingredients and spreads per gallon.

Steel. Electro Metallurgical Co., New York. Circular on the use of stainless steel in the dyeing industry.

Spindle Lubrication. The Atwood Machine Co., Stonington Conn. New bulletin —"The Care and Lubrication of Spindles"— which outlines in detail the essentials of good maintenance for spindles on silk and rayon throwing machinery.

Silicates of Soda. Philadelphia Quartz Co., Philadelphia. Illustrated booklet containing the complete story on the manufacture, properties, analysis and uses of silicates of soda.

Motor Reducers. Philadelphia Gear Works, Philadelphia. Catalog describing line of motor reducers.

Pumps. De Laval Steam Turbine Co., Trenton, N. J. Catalog showing details of construction and operation of propeller pumps.

Welding Unit. Harnischfeger Corp., Milwaukee, Wis. Illustrated booklet describing the P&H "Hansen" arc welder in various models.

Electrical Equipment. General Electric Co., Schenectady, N. Y. Catalog of G-E power generating and electrical equipment designed especially for the textile industry.

Dyeing Machinery. Rodney Hunt Machine Co., Orange, Mass. Illustrated circular showing new features of "Tru-Shade" dye kettles and other finishing machinery.

BUSINESS NEWS

E. F. HOUGHTON & Co., Philadelphia, Pa., oils and leathers for the manufacturing industries, has opened a district sales office in Charlotte, N. C., at 514 First National Bank Building, in charge of C. G. Schultze, sales manager. This new office will serve the Carolinas, in addition to the personal services of H. J. Waldron, Greensboro, N. C.; R. J. Maxwell, Greenville, S. C.; and D. O. Wylie, of Charlotte. Miss Kathleen Wakefield, formerly on the staff of the Southern Textile Association, is now connected with the Charlotte office of E. F. Houghton & Co.

GUIDER SPECIALTY CO., New Haven, Conn., maker of pneumatic, electric and mechanical guiders for woven fabrics, has appointed the Carolina Specialty Co., Charlotte, N. C., exclusive agent for the States of Virginia, North and South Carolina, Georgia, Alabama, Tennessee and Mississippi. The company has also appointed A. Clyde Freeman, Jr., as exclusive agent for the New England States. Mr. Freeman was for 11 years associated with the Providence office of H. W. Butterworth & Sons Co.

GIVAUDAN - DELAWANNA, INC., New York, has formed the Industrial Aromatics Division, which will concentrate entirely on the development and sale of aromatic chemicals for rubber goods, textiles, leather, printing inks, paints, polishes and all products presenting an odor problem. The division began to operate on Jan. 1. It will aid in servicing the industrial named and permit more direct research work wherever indicated.

A. M. BURT, Philadelphia, has been appointed selling agent in the Middle Atlantic States by the Abington Textile Machinery Works, Boston, Mass.

UNION SPECIAL MACHINE CO., Chicago, has established a new southern branch office at Atlanta, Ga., under direction of P. T. McLendon, manager, and H. A. Sims, his assistant, who have represented the company in the South for a number of years. Service representatives will be maintained at Greensboro, N. C. and New Orleans, La.

C. G. SARGENT'S SONS CORP., Graniteville, Mass., has appointed F. E. Wasson, 930 Drexel Bldg., Philadelphia, as its representative in the Philadelphia district as of Jan. 1.

TEXTILE MACHINERY MAKERS, LTD., Manchester, a merger of six prominent British firms, plans temporarily to concentrate operations at three of its six plants. These are Platt Bros. & Co., Ltd., Howard & Bullough, Ltd., and Brookes & Doxey, Ltd. The three which will suspend operations are Dobson & Barlow, Ltd., Asa Lees & Co., Ltd., and John Hetherington & Sons, Ltd. Certain of the specialties for which the last three firms are noted will be continued presumably by operations at the first three plants, though a skeleton staff will be maintained at the suspended works to continue an adequate supply of spare parts.

RAYMOND S. BARTLETT & ASSOCIATES, consulting textile engineers, have taken new offices at 25 Kneeland St., Boston.

FRED C. ARCHER has been appointed manager of its Philadelphia district by the Lincoln Electric Co., Cleveland, Ohio. He was formerly president of the Fred C. Archer Co., which he organized in 1925.

SYLVANIA INDUSTRIAL CORP., New York, will enlarge its Virginia plant particularly for its transparent and moistureproof "Sylphraps." Building contracts are to be awarded this month.

DENMAN RUBBER CO., Warren, Ohio, which has developed a complete line of rubber-fabric pickers, bumpers, parallel blocks and other loom accessories, recently appointed the Terrell Machine Co., Charlotte, N. C., as sales agents for the southern territory consisting of North and South Carolina, Virginia, Georgia, Alabama and Tennessee.

ROBERT GAIR CO., INC., New York, has created three major divisions to handle its production and selling of boxboards, containers and folding cartons, according to E. Victor Donaldson, president. The Boxboard Division will be headed by Robert H. Bursch, who will have charge of both manufacturing and sales. L. H. Gaetz will continue in charge of production of the Folding Carton Division, and F. S. Wakeman, will be its sales manager. F. G. Becker has been appointed general manager of the Container Division and Chase Flints its sales manager.

HOOKLESS FASTENER CO., Meadville, Pa., announces an aluminum slide fastener, considerably less than half the weight of the very small Talon fastener announced early in 1931. A 93-in. length of this aluminum fastener weighs less than 1 oz. It is designed especially for use on lingerie, dresses, children's clothes and items where an extremely light weight is required.

FISHER GOVERNOR CO., Marshalltown, Iowa, manufacturer of automatic controling devices, has opened a direct factory sales and engineering office at 30 Church St., New York, which will be in charge of O. M. Galiher, A. W. Bailey, and J. J. Belger.

FARREL-BIRMINGHAM CO., INC., Ansonia, Conn., has appointed Richard A. North as assistant chief engineer. He is a graduate of Sheffield Scientific School of Yale University where he later taught for six years. He since spent four years with the Merchant Fleet Corp., United States Shipping Board and 1½ years with Grace Lines, Inc.

NORMAN J. GOULD, president of Gould's Pumps, Inc., has announced the acquisition of the Hydroil Corp., of Lebanon, Ind., manufacturers of oil purifying apparatus. The Lebanon plant is being discontinued and the business and equipment transferred to the Seneca Falls plant of the Gould company. D. B. Clark, vice-president of Hydroll and W. P. Alexander, factory and field representative, will join the Gould organization, which will continue to manufacture the Hydroil centrifugal purifying machines at Seneca Falls.

Southern representatives of the ECONOMY ENGINEERING CO., manufacturers of cotton stackers and other lifting equipment, have their machines mounted on an automobile trailer and can make a demonstration in textile mills within five minutes after arrival. George P. Davis, 406 Builders Building, Charlotte, N. C., and R. S. Kerr, 387 Spring St., Atlanta, Ga., are handling sales for this company in the South.

GLENN E. WEIST, formerly sales engineer with the Milwaukee Electric Hoist Division of the Harnischfeger Co., has joined the Kron Co., Bridgeport, Conn., manufacturers of automatic dial scales for all industrial uses.

UNITED STATES TESTING CO., INC., Philadelphia, Pa., has leased building at 601 West Susquehanna Ave. and will remove from 207 Chestnut St. to new location on Jan. 14.

TEXTILE WORLD is a consolidation of *Textile World Record* and *Textile Manufacturers Journal*, effected in 1915.

Textile World Record was the paper resulting from the merger, in 1903, of *Textile World* and *Textile Record*. The former was founded in 1888 by Walter B. Guild and Henry G. Lord. In 1895 it absorbed *Industrial Record*, formerly *Manufacturers Review and Industrial Record*, which was started in Boston in 1868. *Textile Record* was founded in 1880 in Philadelphia by Charles Heber Clark and Frank L. Nagle.

Textile Manufacturers Journal was founded in New York in 1894 by Joseph H. Bragdon. The merger of *Textile World Record* and *Textile Manufacturers Journal* in 1915 resulted in the formation of Bragdon, Lord & Nagle Co., Inc., and publication of *Textile World Journal*, later shortened to TEXTILE WORLD.

In 1923 *Posselt's Textile Journal* was absorbed by TEXTILE WORLD; and in 1924 *Textiles* was also absorbed.

In 1928, TEXTILE WORLD became affiliated with the McGraw-Hill Publishing Co.

The editorial staff of TEXTILE WORLD consists of: Douglas G. Woolf, editor; William B. Dall, managing editor; Edwin D. Fowle, associate editor; Winn W. Chase, assistant editor; Ralph C. Maultsby, southern editor; James A. Austin, New England editor; Paul Wooton, Washington correspondent.

[NOTE: Published semi-annually for purposes of record.]

INDUSTRY-WIDE EVENTS

Share-the-Work Movement Progresses in New York

George A. Sloan, Share-the-Work Movement Chairman of the Clothing and Textiles Group in New York City, reported recently that progress was being made in bringing the firms in those trades into the movement. Associated with Mr. Sloan in this program are:

Ramsay Peugnet, secretary, Silk Association of America; Walter S. Brewster, president, Association of Cotton Textile Merchants of New York; W. Ray Bell, secretary of the Association of Cotton Textile Merchants of New York; Morris Haft, of Morris W. Haft & Bros., Inc.; William Goldman, of Cohen, Goldman & Co.; Louis Hall, president, Textile Converters Association; W. P. Fickett, secretary, Shirting Fabrics Association; W. L. Pierce, president, National Association of Finishers of Textile Fabrics; George Sawyer, secretary, National Association of Finishers of Textile Fabrics; Claiborne Carr, general manager, American Enka Corp.; Ellen Jacobsen of J. P. Stevens & Co.; Paul B. Halstead, secretary, Cotton Textile Institute.

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Editors Expect Slight Upturn

Industries represented by members of the National Conference of Business Paper Editors who contributed to the annual summary recently released, have leveled off at the turn of the year, following a small fall upturn. Many of the editors, however, look for a slight rise in January, February and March. They point to unfailing indicators: a fall increase in car loadings, electric power consumption, and building costs.

Everywhere, the editors report, industry has tightened up its belt, cut down costs and begun to modernize. But it has displayed American ingenuity: Railroads are air-conditioning passenger trains and moving freight faster than at any time in history; power stations are running boiler pressures up to 1800 lb. and temperatures to 1000 deg. to get greater economy; textile mills have learned to make fabrics crease-proof, to produce full-fashioned hosiery in a single operation; paint makers offer quick-drying colors for outside use.

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Robertson Reports Modernization Gain

Rehabilitation projects involving expenditure of $105,206,429 by industrial plants and retail establishments in the United States are under way or will begin shortly, according to a statement made recently by A. W. Robertson, chairman of the National Committee on Industrial Rehabilitation and chairman of the board of Westinghouse Electric & Mfg. Co. Mr. Robertson emphasized the fact that in addition to the projects included in this total, literally thousands of small modernization operations, of which no record could be kept, have been reported to committee workers and chairmen throughout the United States. He added that the effort would go on indefinitely, certainly until such time as improvement trends, resulting from the movement, show signs of becoming fixed factors in the return of normal business conditions.

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Brochure Dramatizes Quality Movement

An impressive brochure, dramatizing the National Quality Movement, has been distributed by the Committee of 100, of the National Retail Drygoods Association. Visible evidence of the sacrifice of quality is provided in the form of reproductions of advertisements featuring sensational price-cutting sales throughout the country. As an antidote, is the collection of editorial clippings reflecting the endorsement of the quality movement by the press.

"Quality is the stuff of which prosperity is built," says the committee. "It costs little more to make goods well than to make them poorly. That small difference is enough to give the consumer satisfaction, and to give the merchant and manufacturer the additional profit that makes the difference between depression and prosperity."

•

Retailers and Wholesalers to Meet

Important meetings of both retailers and wholesalers are scheduled for New York this month. The annual convention of the National Retail Dry Goods Association will be held at the Hotel Pennsylvania, Jan. 16-20. The annual meeting of the Wholesale Dry Goods Institute will take place Jan. 16-19 at the Hotel Governor Clinton.

•

Hard-Fiber Twine Simplification

A schedule of stock kinds and put-ups for the hard fiber twine and lath yarn industry has been issued by the Bureau of Standards, Division of Simplified Practice, which marks a reduction from 1,304 kinds and put-ups to 388. Change in designation of twine is also made to "Class I," "Class II," etc., instead of using fiber names. Classes and corresponding trade names formerly used follow: Class I, Manila; Class II, Java; Class III, New Zealand; Class IV, Sisal (meaning Mexican sisal); Class V, containing at least 65% Istle and worked on hard-fiber machinery.

•

To Head Industry Department at N. C. State

A new phase of activity was undertaken by North Carolina State College on Jan. 1 when Theodore H. Johnson became Professor of Industry, a new position created last spring by the college trustees. It is felt by Dr. E. C. Brooks, president, that the result of the activities of this new department will be to broaden materially the opportunities of the textile and engineering graduates, and to serve more effectively the industries of the State.

•

Leipzig Fair Next March

The Leipzig Trade Fair will be held Mar. 5 to 12, 1933, and will comprise exhibits from 32 countries and buyers from twice as many lands, offering an unusual opportunity for reaching world markets.

Photographic "Racket"

An old game is being played again. Last month, a photographer entered a New England textile plant, represented himself as connected with TEXTILE WORLD, and secured permission to take pictures inside the mill. The man in question is not in any way connected with this publication. The "racket" is to take pictures of groups of the operatives, with the idea of coming back and selling such photographs to individuals.

If at any time TEXTILE WORLD desires to secure pictures in any textile plant, the editor will get in touch personally with the head of the mill concerned. We have no accredited representatives who are wandering around for the purpose of taking photographs for us. Readers are urged to do everything they can to discourage this "racket."

Textile Calendar

Silk Assn. of America, annual dinner, New York, Jan. 19, 1933.

National Knitted Outerwear Association, exposition, Grand Central Palace, Feb. 13 to 17, 1933.

Silk Assn. of America, annual meeting, New York, Mar. 22, 1933.

Knitting Arts Exhibition, Commercial Museum, Philadelphia, Apr. 24 to 28, 1933 (tentative).

National Cotton Week, May 15 to 20, 1933.

American Society for Testing Materials, annual meeting, Stevens Hotel, Chicago, June 26 to 30, 1933.

Fourteenth Exposition of Chemical Industries, Grand Central Palace, New York, Dec. 4 to 9, 1933.

TEXTILE WORLD'S

Cotton Digest

INDIVIDUALS and organizations in the cotton industry have joined in paying tribute to the efficient manner in which the American Red Cross has utilized Farm Board cotton for the relief of the needy. This approval has been further reflected in the widespread endorsement of the move to allot the remainder of the Board's surplus holdings for the same purpose.

Action in this direction affecting the 329,000 bales remaining under the control of the Farm Board, through its stabilization corporation, was taken by the House and Senate last month and, at present writing, is in conference committee. It is to be hoped that, before this issue appears, the bill will have been released from conference and signed by the President.

Seldom has a task of such magnitude been conducted with such a minimum of friction and lost effort as has the Red Cross's effort in this matter.

Case Against Prison Duck Mill Presented

"The Case—Against the Manufacture of Cotton Duck by the Federal Penitentiary at Atlanta" is the title of a brief presented last month to the Attorney General of the United States by the Cotton Duck Association, Association of Cotton Textile Merchants, National Association of Cotton Manufacturers, and American Cotton Manufacturers Association. The brief was transmitted by Robert P. Hooper, president of the Cotton Duck Association.

Among the exhibits included in the brief are statements by the several associations named above, as well as a copy of the memorandum presented by Mr. Hooper before the Shannon committee in Washington last September. The brief also includes a reprint of the article on this subject, published in the October issue of TEXTILE WORLD.

•

Goods Sales 82% of Production

Sales of cotton goods during November totaled 204,999,000 yd., or 82.3% of the production, which was 249,054,000 yd., according to the report of the Association of Cotton Textile Merchants of New York. Shipments during the month were 215,578,000 yd., or 86.6% of production. Stocks increased 20.1% during the month to a total of 200,144,000 yd. on Nov. 30. Unfilled orders decreased 3% to 336,544,000 yd. on Nov. 30.

Cotton consumption in November totaled 503,722 bales as compared with 425,228 bales in the corresponding month last year. Consumption for the four months ending Nov. 30 totaled 1,900,222 bales against 1,775,616 during the same period of 1931.

In the cotton spinning industry, the Bureau of Census reported operations at 96.9% capacity on a single-shift basis, as compared with 97% for October, 94.6% for September, 72.4% for August, 51.5% for July, and 85.5% for November, 1931.

•

New Tax Clause Recommended

It was announced on Dec. 22 that committees representing the Textile Fabrics Association and the Association of Cotton Textile Merchants of New York jointly recommend that all clauses relating to sales or excise taxes or extra charges by the Federal Government be replaced with the following clause on all sales-notes, orders and contracts:

"In addition to the net price stated herein, buyer agrees to pay to the seller, upon collection by the Government, the amount which, because of this transaction or any portion hereof, the seller is required to pay to the Federal Government on account of taxes or charges not now existing. If such taxes or charges be imposed upon raw material, a proper allowance for waste is to be added."

•

Confer with Roosevelt

President-elect Franklin D. Roosevelt obtained a first-hand view of the problems of the textile industry from Howard E. Coffin, president of General Textiles, Inc., and W. J. Vereen, of Moultrie, Ga., past-president of the American Cotton Manufacturers' Association, at a luncheon-conference at Albany recently.

Mr. Coffin also had contact with the present Administration, as he entertained President and Mrs. Hoover during the Christmas holidays at Sapello Island, Ga.

•

Converters' Association Changes Name

As another step in the program for expansion and strengthening of the Textile Converters' Association, that organization has decided to change its name to the Textile Fabrics Association, which will open it up to a broader membership, overcoming as it does the limitations supposed to exist within the meaning of the term "converter." This step follows that some months ago when the Textile Converters' Association absorbed the Shirting Fabrics Association.

Henry Lauten, chairman of the board, expressed the hope that the association would expand so that it might compare favorably to the strongest in any industry. Charles Pinnell, head of Fred. Butterworth & Co., has been elected president.

•

Fine Goods Manufacturers Meet

At a meeting of manufacturers of fine cotton goods held in Boston recently, it was brought out that employment conditions in mills making that type of goods have been better for the last three months than during the same time in the previous two years. Production in this period was 24% greater than a year ago and 27% above 1930, as the result of large sales. While this helped employment, the same cannot be said of earnings since prices generally have not equalled replacement values.

George A. Sloan, president of the Cotton-Textile Institute, who attended the meeting, stated that fine cotton goods mills are looking forward with confidence to the continuation next spring and summer of the vogue for cotton in women's wearing apparel. He declared that recent surveys among style authorities emphatically indicate a further extended popularity for cotton.

•

Cone Adds to Flannels

The Cone Export & Commission Co. will add to its already large line of cotton napped goods by handling on an agency basis also the napped lines of Appleton Co., Florence Mills and American Spinning Co.

•

Textile Forum Meetings Scheduled

The textile forum of the National Association of Cotton Manufacturers will open its 1933 series of meetings

Jan. 19, at which overseers of carding will get together for a discussion of problems they encounter in their work. The other meetings scheduled are as follows: Overseers of spinning, Feb. 9; master mechanics, Mar. 2; overseers of warp preparation and weavers, Mar. 23; rayon processors, Apr. 13; overseers of dyeing, bleaching, and cloth room, May 4; agents, managers and superintendents, May 25.

All the sessions will be held at the Chamber of Commerce, Boston, and each meeting will open at 10:30 a.m. and will continue through the day.

•

Cotton Textile Merchants Dine

The 15th annual dinner of the Association of Cotton Textile Merchants of New York, was held on Jan. 5 at the Union League Club, New York. Bruce Barton was the principal speaker.

•

Sellers Set Up Employment Registry

The Association of Cotton Textile Merchants of New York will maintain a registration bureau where qualification and experience records of unemployed members of primary textile selling organizations may be made available to those seeking to employ such men.

•

Favors Jute Tariff as Against Allotment Plan

Opposition to the domestic allotment plan of farm relief in its present form but expression of a desire on the part of the cotton textile industry to support actively any sound plan for farm aid, were voiced recently by B. B. Gossett, president of the American Cotton Manufacturers' Association.

In the line of a constructive suggestion, Mr. Gossett pointed out that the American Association had for years advocated a tariff on jute and he stated that such a tariff would increase domestic consumption of cotton from 1,000,000 to 2,000,000 bales annually.

•

Cotton Price Comparisons

The following are prices of key items in the cotton industry:

	Jan. 3	Dec. 1	Jan. 1 1932	Jan. 1 1931
Spot Cotton, N. Y.	6.10	5.95	6.25	10.15
Ditto, high previous month	6.20	7.15	6.55	10.60
Ditto, low previous month	5.70	6.15	6.00	9.45
36 Peeler Comber	6c	6c	5¾c	8¼c
4s White Spooler Waste	4c	4c	4½c	7½c
10s frame spun yarn	12½c	13c	13c	19c
10s/2 carded skeins	12½c	13c	13½c	19½c
20s/2 carded peeler warps	15c	15c	16c	21½c
60s/2 combed peeler warps	38c	43c	40c	55c
60s/2 mercerized cones	55c	55c	52c	71c
37-in., 3-yd. drill	4½c	5c	4¾c	7½c
38½-in. 64x60s	3½c	3½c	3¾c	5½c
36-in. 4-yd. 56x60s	3½c	3½c	4c	6c
Denim, 2.20s	9c	10½c	9½c	11½c

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Cotton Mill News

BRIDGEPORT (Conn.) COACH LACE CO. has purchased the Ives Corp. plant in Bridgeport, and will transfer its Chelsea, Mass., plant there immediately. About 75 narrow fabric looms and other equipment will be moved.

WAUREGAN-QUINEBAUG MILLS, Danielson, Conn., have discarded 54 looms which have been in use for 50 years and replaced them with Stafford looms removed from a mill in Occum. The company recently discarded a slasher said to be the second oldest in active use in the country.

GOODYEAR TIRE & RUBBER CO. is moving textile machinery from its Killingsly (Conn.) plant to the company's textile mills at Cartersville and Rockmart, Ga.

CLIFTON YARN MILLS has closed its Stratford (Conn.) branch, formerly Toulson Yarns, Inc., and consolidated the plant with its main mill in Clifton Heights, Pa.

JOHN P. KING MFG. CO., Augusta, Ga., has approved plans for an expansion and improvement program. New looms and auxiliary equipment will be installed. Work is reported to cost over $60,000.

EAGLE & PHENIX MILLS, Columbus, Ga., reports net income of $26,473 for the fiscal year ended Aug. 31, 1932, against a net loss of $95,911 for preceding year.

BIBB MFG. CO., Macon, Ga., reports net profit of $133,570 for the year ended Aug. 31, 1932, against net profit for the previous year of $1,050,086.

MOUNT VERNON-WOODBERRY MILLS, INC., Baltimore, Md., has arranged for indefinite curtailment in production at local mills, and only mop yarn and seine divisions will be continued at this point. Heavy duck production will be concentrated largely at their Columbia (S. C.) Mills unit, where looms and other equipment have been removed; lighter fabric manufacture will be carried out at Tallassee (Ala.) Mills.

LANCASTER MILLS, Clinton, Mass., will liquidate at $4.16 per share for preferred stockholders with nothing available for common stockholders.

UNION COTTON MFG. CO., Fall River, Mass., has paid its final liquidation dividend of $2.35 per share.

POTOMSKA MILL, New Bedford, Mass., has been recipient of a tentative offer around $32 per share by Jerome A. Newman for controlling interest.

PLYMOUTH (Mass.) CORDAGE CO. reports net loss of $232,627 for year ended Sept. 30, 1932, against net loss of $24,857 for previous year.

NATIONAL CORDAGE CORP., Springfield, Mass., clothes line, awning line and sash cord, has leased new quarters in a factory building at Chicopee, Mass.

COLUMBIAN MILLS of Otis Co., Greenville, N. H., made a 15% increase in wages on Jan. 2 and reinstated requirement for rental by occupants of company houses but at a 25% reduction. Last August employees accepted a 35% reduction in salaries with houses rent free.

AMOSKEAG MFG. CO., Manchester, N. H., trustees have offered to owners of Amoskeag bonds a plan to accept 35% cash for them and the remainder in preferred stock. The Amoskeag Co. has declared dividends of $4.50 on preferred stock and $2.00 on common out of 1932 earnings.

NASHUA (N. H.) MFG. CO. reports net loss for year ended Oct. 31, 1932, of $835,896, compared with net loss of $1,760,495 for previous year. Sales in dollars were 27% below previous year and volume in units 11% less.

BURLINGTON (N. C.) MILLS CO., J. Spencer Love, president, has been formed to merge six mill companies already controlled by the Love interests.

POMONA MILLS, Greensboro, N. C., have reduced their capital stock by cutting par value of common stock from $100 to $1.

CLYDE MILLS, INC., Westerly, R. I., has started removal of its four-story brick mill tower to permit the widening of the highway. It is reported the mill will receive $10,000 compensation from the state.

IRENE MILLS, INC., Gaffney, S. C., have been organized with capital of $200,000 and 5,000 shares of stock, no par value, to take over and operate the Irene Mills, in receivership for some months. New company is headed by J. C. Fort and L. G. Balle, Gaffney.

CAMPERDOWN MILLS, Greenville, S. C., resumed operations on Dec. 19 after a repair to the roof, which had given way under the weight of snow two days earlier.

SOUTHERN PILE FABRIC CO., Greenville, S. C., is planning increase in capital from $100,000 to $200,000.

UNION-BUFFALO MILLS CO., Union, S. C., report net loss of $190,976 for year ended Sept. 30, 1932, against loss of $646,338 for preceding year.

DOMINION FABRICS, LTD., Dunnville, Ont., have recently completed the erection of a single story addition with floor space of nearly 39,000 square feet.

TEXTILE WORLD'S

Wool Digest

THE experiments recently conducted at Lowell Textile Institute to determine by individual combing of fleeces the effect of various sheep-raising conditions on the wool are, besides being a notable combing achievement, a very real contribution to the establishment of closer cooperation between manufacturers and growers. As a rule, mill men have no means of knowing just where the wool they purchase came from and under what conditions it was grown—factors which have an important bearing on their spinning operations.

This type of cooperation might be extended to other matters, including for example the selection of a paint suitable for durable branding of the sheep but easily removable for manufacturing.

"Wool Week," Here and Abroad

October, 1933, will probably witness the launching of Britain's first "National Wool Week." Negotiations have been proceeding for some little time between wool trade and retail interests, backed by Australian wool growers. There is to be a private meeting in London in January between representatives of Bradford interests, the Drapers' Chamber of Trade and Australians. As a result of this meeting, it is hoped the parties concerned will be able to announce definite dates. British foresight in planning nine months in advance gives a suggestion to the American trade that if Wool Week is to be revived here this year it is not too early to set dates and begin to layout programs.

•

Extension Granted for Clearance of "Part-Wool" Blankets

Postponement for three months of the effective date of new part-wool blanket labeling standards was announced Dec. 26 by L. R. Gilbert, of the Bureau of Standards, Washington. Dec. 31, 1932 had been set as final date for clearance of improperly labeled goods. The new date is April 1, 1933. Effective date for new production remains unchanged at Dec. 31, 1932.

The Esmond Mills conforms to the new system of labeling by mentioning wool only on its all-wool line which will hereafter be sold as "Esmond All-Wool Pelage." Other blankets will be sold under the generic term "Warmspun" (formerly "Esmond Cortex") and each will be accompanied by a "warmth certificate" stating that "Actual tests prove that the Cortex process of making Warmspun blankets produces the warmest blankets obtainable at comparable prices."

•

Wool Growers Urge a Good Suit for $15

The National Wool Growers Association in session here at Portland, Ore., Dec. 12 and 13, have adapted the formula of the late Thomas Marshall, who insisted that what the country needed was a good five-cent cigar. The wool growers believe that what the country needs is a good $15 suit of clothes. Cloth sellers are not wholly in agreement as there is a strong feeling that better markets are made by holding high quality rather than by trading down to a price.

The re-election of all officers, including F. J. Hagenbarth, president, was accomplished at the last session of the meeting. It is Mr. Hagenbarth's 20th term. The vice-presidents retained were: F. A. Ellenwood, A. A. Johns and T. A. Kincaid. F. R. Marshall, Salt Lake City, was reelected secretary-treasurer.

•

Wool Ties—Threatened but Still Promising

From some quarters come mournful comments on likelihood of debased price and quality killing the vogue for wool neckties. The cheaper neckties are of the coarser and fuzzier texture and the low price on these will turn away the man who wishes to affect luxury in dress. The better sort of wool ties cannot readily be distinguished from silk except on close examination and it seems unreasonable that these should fear the reaction of sub-bargain prices for low quality goods. Printed lines of fine wool goods hold possibilities for tie use after the plaids, checks and stripes of yarn dyed patterns have palled on the public.

•

Recovered Wool Drops 61% in Two Years

The 1931 census of the wool shoddy industry lately issued indicates shrinkage of 20 to 60% in items reported as compared with 1929. Recovered wool fiber amounted to 33,500,893 lb., valued at $5,031,708 in 1931 compared with 56,908,767 lb. valued at $12,934,839 in 1929; declines of 61 and 41% respectively. Value per pound fell from 22¾c. to 15c. There were 39% fewer workers employed in 1931 and 47% less wages paid.

•

Uncut Pile for Upholstery

An interesting upholstery fabric imported from Germany has been seen in the New York market. It is called a "Friezette" and is composed of a closely looped uncut pile which gives it a most durable and resilient surface. It is a warp pile fabric probably made on a 60-harness loom. Geometric patterns in numerous colors are possible as the warp is double and parts of it vary in color to meet the requirements of the pattern. Priced at $9 per yard it is too high for volume trade at present, but suggests a style of cloth which might be simplified and made for a considerably lower price.

•

Imported Angora Rabbit Hair Drops to $3.56

According to incomplete statistics compiled by the Textile Division, Bureau of Foreign & Domestic Commerce, imports of Angora rabbit hair through customs districts of Boston, New York, and Philadelphia during 1931, totaled 23,094 lb., valued at $140,906. Practically all of these imports came from France, the United Kingdom supplying only 230 lb., valued at $1,235; no imports being received from other countries.

•

Duval to Liquidate

W. H. Duval & Co. and Duval, Lellback & Slack, New York, will be liquidated as of Jan. 31, 1933. W. H. Duval will endeavor to reestablish his health before reentering business. H. C. Slack and Paul Lellback will be associated with the E. L. Bornemann organization. The Duval business was established in 1892 and was prominent in the wool goods selling field for the ensuing 40 years.

London Wool Steady

Prices of greasy wools grading 56s and above closed firm at the London wool sales early in December, while prices on 50s and below were slightly weaker as compared with the opening of the series. Prices on the whole were 5 to 7½% lower than November closing. Schedule of opening dates for London wool sales this year follows: Jan. 17, Mar. 14, May 9, July 4, Sept. 19, Nov. 21.

•

Would Authorize Wool Garments for Red Cross

If further legislation is enacted to donate cotton to the Red Cross for relief purposes, Senator Copeland will endeavor to have included in it an amendment to authorize the exchange of cotton goods for wool garments.

•

Wool Exchange Facilities Continued

The New York Cotton Exchange has voted to continue for six months, from Jan. 1, 1933, to June 30, 1933, the arrangement with the Wool Associates of the New York Cotton Exchange, Inc., by which it furnishes to the latter trading space on the Exchange floor and other facilities. It further empowered the Board of Managers of the Cotton Exchange to continue the arrangement beyond six months at its discretion.

•

Wool Association "Bulletin" Discontinued

The National Association of Wool Manufacturers has discontinued publication of its "Bulletin" by vote of the executive committee. This bulletin which had been published as a quarterly for 62 years, was a valuable compendium of information on the trade including articles and statistics. Each issue ran 150 pages or more.

•

A Seasonal Slowing Up

Wool consumption, grease basis, for November is reported as 38,963,408 lb., 7% under October but 10% above November a year ago. Machinery activity in November slowed up more noticeably in spinning than in weaving. The trend is seasonal.

•

Wool Novelties

An error occurred in the printing of the "Wool Novelties" article in the December issue. On page 98 the chain and drawing-in drafts under "Fancy Sport Coating" should be exchanged for those under "Dress Fabric."

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Australia May Have a Wool "Czar"

The committee of inquiry into the Australian wool industry in the report recently published recommended the establishment of a "Commonwealth Wool Executive," comprising one representative of the wool growers in each State, with the chairman of the Australian Wool Growers Council as an ex-officio member, and two representatives of the National Council of Wool-Selling Brokers, with power to set a minimum export price.

•

Phila. Yarn Seller Moves

Joseph E. Duval, Philadelphia yarn representative of Massachusetts Mohair Plush Co., Warner J. Steel and River Mills, Inc., removed on Dec. 31 to new offices in the Beury Building, 3701 North Broad St.

•

Price Trends in Wool

The following are prices of key items in the wool industry. Current prices are given with comparisons covering a month ago, a year ago and two years ago:

	Jan. 3	Dec. 1	Jan. 1 1932	Jan. 1 1931
Fine and fine med. territory	$0.42	$0.42½	$0.53½	$0.65
Ohio ⅜s	.20	.20½	.23½	.27½
Texas, 12 mths	.43½	.44	.55	.66½
Tops, fine, 64-66s	.61	.63	.78½	.94
Average ⅜s	.53	.54	.62½	.76½
High ⅜	.50	.51	.52	.66½
Noils, fine	.34	.34	.32½	.48½
2-40s 60s wstd yarn	.92½	.95	1.20	1.40
3192 serge	1.20	1.20	1.68½	1.96½

•

Wool Mill News

WARRENTON WOOLEN CO., Torrington, Conn., is building a small addition to its mill.

BROWN MILL of American Woolen Co., Dover-Foxcroft, Me., is running near capacity, largely on white flannels. Work is in progress repairing the canal wall which will be completed this month.

BIGELOW-SANFORD CARPET CO. has closed its mill at Clinton, Mass., moving the equipment to the main plant at Thompsonville, Conn., and a branch at Amsterdam, N. Y.

GEORGE H. GILBERT MFG. CO., Gilbertville, Mass., founded in 1841, has been sold by the stockholders to Leonard B. Campbell and Walter W. Holt, who bought the entire capital stock. The amount was not revealed.

HUNTINGTON (Mass.) TEXTILE CORP. has been formed to take over the worsted mill formerly known as the Lovering mill and last operated by Huntington Mills, Inc. It is planned to resume operations early in the new year. The new concern is capitalized at $15,000. D. V. Messer, formerly superintendent of the mill, is president, F. J. Heine is vice-president and C. F. Moultenbrey is treasurer.

LEOMINSTER (Mass.) WORSTED CO. was sold at auction Dec. 21 for $14,000 by the assignees. The purchasers, unnamed, are reported planning to reopen the mill.

AMERICAN MFG. CO., Brooklyn, N. Y., has acquired the BOZART RUG CORP., Springfield, Mass., and will operate it as a subsidiary under the name of NU-ART FIBER PRODUCTS CO.

CHILTON MILLS, Webster, Mass., have been leased by Frank and Walter Poblocki, owners of the Pascoag (R. I.) Yarn Mill, which was destroyed by fire Dec. 6. The yarn business will be continued in the Webster mill.

SOUHEGAN WOOLEN MILLS, Wilton, N. H., have been started up by E. J. Abbott of the HILLSBOROUGH MILLS.

STAYTON (Ore.) WOOLEN MILLS have been purchased by Robert Paris, owner of the BROWNSVILLE (Ore.) WOOLEN MILLS. Machinery from the latter plant will be moved to Stayton.

BRIGHTON WORSTED CO., Philadelphia, which has been in liquidation for over a year, is being reorganized by Chas. F. Sloan, owner. The new firm will be known as BRIGHTON WORSTED MILLS. Mr. Sloan recently purchased the name, goodwill, layouts, samples, labels, etc., from the equity. receivers. The new company will start in business at the Brighton mill, which building is owned by Mr. Sloan.

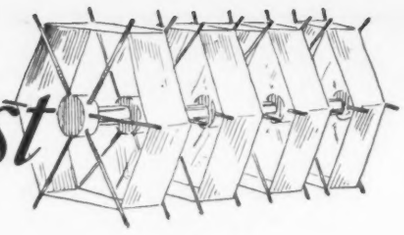
CHARLOTTESVILLE (Va.) WOOLEN MILLS have declared an extra dividend of 25c. per share on their 7% participating preferred.

HARDING CARPETS, LTD., Brantford, Ont., report a loss of $35,189 for the year ended Oct. 1, 1932, against a loss of $5,310 for the preceding year.

CARLETON MILLS, LTD., have been granted a charter to take over the idle mills of the HAWTHORNE WOOLEN MILLS, Carleton Place, Ont., formerly operated by Geo. H. Hirst & Co. (Canada), Ltd., which was forced into liquidation early in 1932, through the failure of the parent company in Batley, Eng.

TEXTILE WORLD'S

Silk Digest



FROM several directions have come manifestations of a general feeling that "something should be done about" labor conditions in silk mills. The Governor of Pennsylvania conferred with representatives of the manufacturers and of labor, and proposed State legislation for the various silk States which would restrict employment of women, night work, and other aspects. From other sources comes expression of a desire for Federal, rather than State, legislation. The Silk Association wants to review the whole question—and has named a committee.

As in all such discussions, economic factors such as overproduction play an equal part with social considerations. The interest shown is a healthy sign. The main need is to crystallize all the energy now manifest, into some tangible action.

Silk Exchange Votes on Merger

Attention of silk importers and traders centers on the proposal to consolidate the National Raw Silk Exchange with three other commodity exchanges—the Rubber Exchange, Metal Exchange and Hide Exchange. The project has been approved by the governing bodies of all four institutions and now will be submitted to the memberships for ballot.

The plan also calls for the organization of a corporation which will serve as the operating agency of the clearing associations of the exchanges. If the project is ratified there will be four trading rings operating on one floor. Details such as location of the consolidated trading-house have not been taken up, pending decision of memberships on the project itself.

Opinion expressed by leading silk importers and traders has been signally favorable to the plan. One point cited is the economy factor. It was stated that each silk house having membership would save a substantial sum due to reduced overhead; one importer said he thought this saving would be as high as $900 per firm. The plan provides that the consolidated exchange be divided into four divisions, one for each of the merged units. It was emphasized that the Silk Exchange would not lose its identity, since it would be a totally separate division.

The new exchange, which it is proposed to call "Commodities Exchange, Inc.," would have a combined membership of about 1,000 representing the total rosters of the separate institutions.

Jerome Lewine, president of the Silk Exchange, and chairman of the joint committee which framed the merger plan, said its approval by the memberships of the four exchanges would be a step toward making New York the greatest commodity center in the world. He said: "The values of the commodities traded in on the four exchanges exceeds $1,000,000,000 annually and with their consolidation into a single exchange it is anticipated that impetus will be given to futures trading that will materially add to the volume and scope of the business the individual exchanges now handle."

•

Move to Eliminate Night Work in Mills

The growing dissatisfaction of both manufacturers and labor groups with present production conditions in the silk industry crystallized toward the end of the year and found expression in several significant activities. Outstanding is the decision of the Silk Association of America to conduct an inquiry looking to possible elimination of night work in silk mills. The board of managers of the association at their December meeting voted for the appointment of a committee to review the question.

Behind this step were various activities by groups, the most important of which was the conference held by Governor Pinchot of Pennsylvania, at Harrisburg, on Dec. 8. Numerous representative silk manufacturers and labor union officials attended. Discussion centered on charges that excessive working hours in Pennsylvania silk mills had violated the State law regarding night work. The outcome was the drafting of a plan for a series of treaties between five or six silk fabric producing States which would similarly regulate working hours.

New York silk authorities, including Paolino Gerli, president of the Silk Association, strongly supported the aim of the Pennsylvania meeting, but Mr. Gerli urged Federal legislation rather than State laws. He argued that State action would merely induce mills to migrate from one State to another to evade the statutes. The question was further considered at a meeting of labor officials of the various silk States, held in New York Dec. 12, and approval of the restrictive movement was expressed there.

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Silk Association Election, March 22

The Silk Association of America Dec. 15 announced the appointment of a committee to nominate candidates for election to the board of managers. This election takes place at the annual meeting of the association in New York on March 22, 1933. The committee follows: Stefano Berizzi, Berizzi Bros. Co., Inc.; Charles E. Bloom, Edward Bloom Co., Inc.; W. R. Blum, United Piece Dye Works; David I. Stern, D. I. & C. H. Stern; Jacob Widder, Widder Bros.

•

Paterson Plans Piece Goods Exchange

Plans for the establishing of a piece goods exchange in Paterson, N. J., are nearing completion as the outcome of a decision reached Dec. 15 by the Broadsilk Manufacturers' Association in that city. The association voted to create such an exchange and to discontinue all relations with brokers both in Paterson and in New York. The exchange according to plans, will be located at the Paterson office of Max M. Baker, executive secretary of the association.

Mr. Baker said the manufacturers felt that the brokers "have done more to break down prices than any other agency," contending that often brokers have been "working one manufacturer against the other, have made unauthorized sales and carried on unscrupulous practices." At the same meeting the manufacturers adopted a resolution asking the Silk Association to set up a plan for registration of all brokers and to establish rules and regulations governing their operations.

•

Silk Association Holds Annual Dinner

Early reservations indicate a good attendance at the sixty-first annual dinner of the Silk Association of America, which is being held Thursday evening, Jan. 19, at the Waldorf-Astoria Hotel, New York. Plans for the event were in charge of the following committee: W. Robert Blum, United Piece Dye Works; John P. Maguire, Textile Banking Co., Inc.; Harold Rubin, American Silk Mills; Henry E. Stehli, Stehli Silks Corp.; and A. B. Strange, of Read & Lovatt Mfg. Co.

Weavers Increase Thrown Yarn Orders

A seasonal pick-up in demand by weavers for thrown silk yarns is reported by the Throwsters Research Institute. It is stated that total November business showed a decided increase over October, and an increase of 65% over 1932 average monthly receipts.

Dean Hill, executive secretary of the institute, stated that receipts of throwing for weaving yarns again was led by rayon, rayon having dropped behind silk in October.

During November member throwsters received 33% more rayon for throwing than the average monthly receipts of this yarn for the year. The weekly reports received by the institute in mid-December indicated still larger receipts for that month.

•

No Date Set for Japan's Control Plan

Advices from Tokio regarding the Japanese Government's plans for applying its silk control plan have been singularly meager, and conflicting views are held by New York importers on the point. In consideration of the emergency conditions prevailing there, however, it is expected that every effort will be made to put the plan into effect before spring. In an address in New York recently, Paulino Gerli, president of the Silk Association, reviewed Japan's program for silk-worm production-control, and urged that the greatest care be taken to make the curtailment consistent with the needs of the American market.

•

Drop Greige Goods Fight

The proposal for concerted action by the converters' division of the Silk Association of America regarding the projected shorter selling terms on greige goods, was abandoned at a meeting held Dec. 6, in New York. Leading converters made brief addresses, emphasizing the desirability of the 30-day principle, but also expressing confidence that the market can dictate its own terms under existing conditions. It was felt that there was no need for group agitation in the matter.

•

The Statistical Picture

Employment decreased 5.3% in the silk industry during November as compared with the previous month, the Silk Association reports, and was 3.9% lower than November, 1931. Machinery operations decreased 9.8% for broad looms, 3.2% for narrow, and 15.7% for spinning spindles, as compared with the previous month.

Yardage sales of broad silks were 12.5% higher in November than for the same month of 1931, but decreased 0.4% as compared with October, 1932. Stocks in hands of manufacturers on Nov. 30 were 4.7% higher than on Oct. 31, but 20.3% lower than on Nov. 30, 1931.

•

50 Mills Exhibit

One of the feature events of the month in broadsilks is the fabric show being held under the auspices of the Fashion Bureau of the Silk Association. This show, the second of its kind, opened Jan. 16 at the New York headquarters of the association, continuing until Jan. 20.

•

Raw Silk Prices Drop 15c. in Quiet Month

Raw silk prices continued their gradual downward trend through December, declining about 15c. on an average through the four weeks. The January outlook, however, was considered good, and spokesmen who are known to be conservative said they looked for an early improvement both in turnover of bales and price levels this month. Broadsilk manufacturers may not be active buyers for the next few weeks, but good orders are expected from hosiery mills.

•

Crayon Prints for Spring

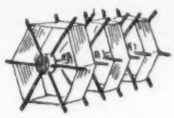
Year-end broadsilk sales, while light, were sufficient to indicate several significant trends. Certain firms report good call for all-rough crepes, especially in the newer pastel shades for spring. Among the novelty effects that find favor are certain medium-size brush stroke crayons; these designs cover a wide range of adaptations on both light and dark grounds, the most popular from point of sales being the casually-drawn geometrics.

•

Silk Price Tables

The following prices of key items reflect the downward trend in silk quotations:

	Jan. 3	Dec. 1	Jan. 1 1932	Jan. 1 1931
Crack XX 13/15 white 78%	$1.50½	$1.48	$1.90	$2.92
Tram. 5 thd Japan 85%	2.25	2.25	2.95	4.25
Crepe 3-4 thd 14/18 Bob.	2.10	2.10	2.20	2.90
60s-2. spun silk	2.50	2.85	3.45	3.35



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Silk Mill News

STUART SILK MILLS, INC., have been formed in Danbury, Conn. Authorized capital is $50,000, with $20,000 paid in. Incorporators are C. Stuart McLean, C. Stuart McLean, Jr., and G. M. Rundle.

GLUVER SILK CO., INC., Hackensack, N. J., has been organized with a capital of 50 shares of stock, no par value, to operate a local silk mill. The company is headed by J. E. Ginsburgh, Hackensack, and associates. It is represented by J. Harry Barth, 141 Main St.

COLT SILK YARN CO., Paterson, N. J., has been organized with a capital of $100,000, to operate a local mill. The company is headed by Abraham M. Kaufman, Paterson, and is represented by Burton B. Wiener, 5 Colt St.

JAMESTOWN (N. Y.) SILK CO. has changed its name to Lafrance Silk Corp. and increased its capital stock.

DUPLAN SILK CORP., New York, reports a net profit of $277,228 for the six months ended Nov. 30, 1932, comparing with $142,733 for the similar period in 1931. The results shown by the report are regarded as an outstanding achievement.

SUSQUEHANNA SILK MILLS, INC., New York, receivers, report a net operating profit since July 20, 1932 of $200,000.

TOOHEY SILK MILLS, INC., Watertown, N. Y., have made an assignment to William J. Crowder for benefit of creditors. The business will be liquidated.

BINZ SILK MILL, Fayetteville, N. C., is about to be started up by the Central Weaving & Spinning Co., backed by New Jersey capital.

TRAYLOR SILK CO., Dunmore, Pa., silk throwster, will remove to Reading in January. It has leased one of the buildings of the D. W. & S. Hosiery Mills.

FLAVIO CANOVA SILK CO., Scranton, Pa., recently organized by Otto and Flavio Canova, 970 Ridge Ave., Scranton, with capital of $20,000, plans operation of a local silk throwing mill. Last noted is treasurer and representative of company.

L. & L. TEXTILES, LTD., woven fabrics, who began operations in Toronto last June, are moving to 225 Sterling Road, where they have leased 6,000 square feet of space. New equipment to double capacity is now being installed.

BRUCK SILK MILLS, LTD., Cowansville, Que., had during the fiscal year ended Oct. 31, 1932, a gross trading profit of $306,496, as compared with $292,961 in the year previous. Installation of a new steam-electric unit is about completed.

TEXTILE WORLD'S

Rayon Digest

THE perennial question of price is once more disturbing the synthetic fiber field. Producers and consumers are heatedly debating whether or not there is to be, and whether or not there should be, a price advance on rayon yarns. From some quarters comes pressure for increases on the coarser deniers; from others comes advocacy of an "as is" policy, for the present.

Theoretically, we believe that no commodity should be priced at unprofitable levels. The producers know, or should know, what prices are profitable and what are not. Good business demands that they be guided accordingly.

However, in the method of effecting the changes, if any, that are necessary, careful judgment should be exercised. Price advances which will not "stick," which will yield to the first serious lull in demand, would prove a boomerang. Price stability —one of the principal potential assets of synthetic fibers—should be the main consideration in projecting the future price policies of the industry.

New Year Finds Yarn Producers in Satisfactory Position

Yarn producers enter the new year in a very satisfactory position, as regards volume. Stocks are low, and orders are well in excess of supply. Several of the principal producers of viscose yarn are booked up solid on the popular deniers, such as 150s, through January and February. Weavers are the chief market at present, and continued steady call from this division is expected through the current month, due to the active consumer interest in rayon dress fabrics.

Knitters are somewhat slow in buying; the underwear group began to let up on orders early in December, and the last four weeks found this group hesitant regarding commitments. The slowest of all divisions, producers report, is the hosiery field, where demand is so light as to be virtually negligible.

On the whole, however, volume is good, as the weavers have no hesitancy about futures. Orders from this division have been so substantial that December volume exceeded November and continued active movement is looked for through the current month.

•

Speculation Rife on Advance in Yarn Prices

Speculation on a possible advance lent zest to rayon yarn merchandising as the month opened, and both buyers and sellers were divided on the advisability of such a move. It is understood that the largest companies are opposed to advance in any denier, but pressure is being brought to raise prices of the coarser sizes. Observers regarded the levels of 100s and 150s as definitely set for the present, but they were less confident with respect to the 200s and 300s.

Conservative opinion among producers is that while the present margin is meager enough, this is not the time to advance, and that the decided improvement in demand noted in the second half of 1932 should be allowed to carry along as is for some time without the readjustment of levels.

•

All-Rayon Goods Increase —an Exception to 1931 Trend

The total value of silk and rayon woven goods produced in the United States in 1931 amounted to $375,857,011, a decrease of 44.8% as compared with $680,484,925 reported for 1929, according to a preliminary tabulation of data collected in the Census of Manufactures taken in 1932 by the Bureau of the Census.

The total for 1931 includes the following items: Broad goods (except velvets, plushes, upholsteries and tapestries), $566,862,129 sq.yd. valued at $281,616,907; velvets, 7,346,438 sq.yd., $12,233,489; plushes, 1,878,859 sq.yd., $2,090,732; upholsteries (except velvets and plushes), 2,908,737 sq.yd., $2,078,270; tapestries, 925,268 sq.yd., $507,951; ribbons, $13,388,483.

The production of practically all classes of silk and rayon goods decreased both in quantity and in value between 1929 and 1931, but a striking exception is found in the case of all-rayon goods, which show increases of 65.7% in quantity and 10.5% in value.

•

Rumor Says Arcadia Will Make Own Yarn

Arcadia Knitting Mills, Allentown, Pa., which reopened recently following resumption of buying rayon yarn from the Viscose Co. of America, now is reported to be considering a plan for production of its own synthetic yarns. Representatives of the company maintain a strict silence on the point, but the possibility has excited much interest among both buyers and sellers of rayon yarn. The fact that this firm consumes up to 20,000,000 lb. of rayon annually lends some weight to the thought that the company might decide to enter the rayon production field.

•

New Rayon Plant Planned in Japan

Advices from Tokio at the end of the year told of the completion of plans by the Nisshin Spinning Co. to organize a rayon manufacturing company. The new firm will be capitalized at 5,000,000 yen. It is understood that the Kawasaki One Hundredth Bank, with which Motohiko Miyasaki is affiliated, will subscribe a large part of the new firm's shares and give direct financial aid.

•

Spun Rayon Demand Should Continue

If American acceptance of spun rayon develops as has the indicated acceptance for it in Europe, the present volume of American spun rayon business is fully justified and should continue or increase, according to the *Textile Organon*, published by Tubize Chatillon Corp. An article in the current issue of that publication gives a comprehensive picture of the American spun rayon market today.

In addition to information on the method of use of spun rayon, statistical data on consumption of both staple fibers and the spun rayon are included. Among the facts noted from a study of these figures is that the combined consumption of the two materials doubled from 1931 to 1932. Most of this increase came from imported yarns. The entire increase in imports took place in the staple fiber, whereas the spun rayon imports declined. It is noted in the article that the imported staple comes from mainly Germany and Italy,

while the bulk of spun rayon arrives from Switzerland.

"As regards quality, particularly," the article concludes, "a better knowledge of the technique of spinning staple rayon, especially along the lines of yarn uniformity, should materially assist the growth of the industry. The ultimate test of spun rayon will be its value in use, and this takes into account not only its competitive position as regards quality and function, but also its bargaining position in terms of price."

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Tariff Commission to Query Rayon Costs

An inquiry into costs of production and other aspects of the rayon and synthetic fiber industry has been ordered by the United States Tariff Commission. An announcement to this effect made Dec. 7 by Sidney Morgan, secretary of the Commission, states that a public hearing will be held at the office of the Commission on a date to be later specified at which all parties interested will be invited to testify or present evidence.

•

Condemn Improper Finishing Methods

Complaint against the type of treatment given certain rayon fabrics by some finishers was heard in the New York market at the end of last month. It was charged that the finishers by their methods are destroying certain of the yarn's qualities and thus weakening rayon's position with the ultimate consumer. Cutters and retailers have often commented of the need for having spots removed from fabrics; and rightly or wrongly, this spotting is attributed to defective methods of finish. These inferior finishes are given by only a small part of the finishing industry according to the trade, but the practice is so prejudicial to rayon that it is felt the yarn manufacturers should take cognizance of it in some action.

•

Exports of Rayon Merchandise Decline

Exports of rayon merchandise from this country showed a drop of about 50% in October last as against the same month of the preceding year, it is indicated in figures announced by the Bureau of Foreign and Domestic Commerce, of the Department of Commerce. Exports in October, 1932, had a value of $187,044 compared with $359,615 the year before.

Comparisons of the two periods bring to light several striking variations. In October, 1931, export of embroidery, crochet, and knitting thread totaled 1,006 lb., value $1,849, which dropped to 96 lb., value $373, in the same month last year. Exports of dress and piece goods woven and knit totaled 613,228, value $210,835, in October, 1931, and vanished completely in October, 1932. Tapestry and drapery fabrics, however, showed an increase from 275 yd., value $376, in 1931 to 882, value $839, in October, 1932.

•

Rayon Production Continues at High Rate

Continued capacity production is the order of the day at most rayon plants. With all firms booked up and some heavily oversold, there is little likelihood of any curb being placed on output, at least until February. Toward the end of December production managers were notified to accelerate their output of the finer deniers due to the sustained call from weavers for this type of yarn. The intermediate deniers are being manufactured rather cautiously, but the trade plants expected increased output here in mid-January when a pick-up in call from the underwear trade is looked for.

•

Trends in Dress Goods

Rayon manufacturers report several significant trends in dress fabrics which promise to influence yarn sales during the next few months. Weavers have increased their output of the flatter fabrics, believing that rough-surface will be less outstanding this year than hitherto. While rough-surface undoubtedly will hold its own in sports wear lines, and even for streetwear, there seems to be a trend toward sleek effects in the more formal fabrics. Rayon flat piques and close warp-knit goods with the 1931 corded aspect are expected to be important. Sheer crepes which have a crisp hand also will be featured in early offerings.

•

Improved Sizing Method

A new method of sizing rayon yarn which it is claimed will both maintain the quality and reduce the cost, has been developed and patended in England, according to advices from Manchester. The process was developed by Percy Ashworth, of Lytham-St. Annes, who holds patent rights. Howard & Bullough, Ltd., have been licensed to make the necessary machinery for the application of the process.

In the Ashworth method the yarn is warped and sized in one operation. The yarn to be treated may be wound on a cheese, or on any type of bobbin. During the sizing process the ends are run from the bobbins or cheeses to the warp beam through the reeds. Is is asserted that the process permits a satisfactory sizing even of inferior yarn containing broken filaments and that such yarn can be woven into good-grade fabric. Separation of individual threads is an important feature of the process. Other advantages cited for the new method are that any weak threads fall out during sizing and their place is taken by new threads which are taken from spare bobbins attached, uneven sizing is obviated, and the yarn is subjected to individual tension throughout the sizing operation.

•

Rayon Price Comparisons

The following are prices of pivotal rayon yarn numbers. Current prices are given with comparisons covering a month ago, a year ago and two years ago:

			Jan. 1	
Viscose Process	Jan. 3	Dec. 1	1932	1931
75 denier (18-30 fils)	$0.90	$0.90	$1.20	$1.70
100 denier (40 fils)	0.75	0.75	1.00	1.30
150 denier (40 fils)	0.60	0.60	0.75	1.00
Acetate Process				
150 denier	0.75	1.00	1.00	1.85
Cupra Process				
150 denier (112 fils)	.....	.....	.90	1.25
Nitro Process				
150 denier	0.65	0.65	0.75	0.95

•

Rayon Mill News

TENNESSEE-EASTMAN CO., Kingsport, Tenn., has begun superstructure for two new multi-story additions to mill, seven and eight-story, respectively, and will soon begin work on other units, including new box factory and pumping station, in connection with an expansion program, recently approved. One of the new buildings will be used for rayon yarn production. Entire project will cost over $1,500,000. Company engineers are in charge.

CANADIAN CELANESE, LTD., has made an installation of an additional 60 looms at its Drummondville plant. Operations of the company have been maintained at a high rate for a number of months. The management has started to pay off arrears of dividends on the preferred stock.

TEXTILE WORLD'S

Knit Goods Digest

THERE is too much of a tendency today, to plead hard times as an excuse for inaction. Plans for aggressive promotion of products are often turned down on the basis that it is "futile" to buck the apathy of buyers.

Occasionally, however, some firm or group of firms decides that doing anything is better than doing nothing—and is pleasantly surprised at the returns. We feel that the enterprise of the National Knitted Outerwear Association in sponsoring the Knitwear Industrial Exposition, to be held in New York in February, is worthy of commendation, and we hope and believe its courage will be rewarded.

This important branch of the knitting activity will have an opportunity to see, under one roof, the latest developments in equipment and supplies produced by those who serve knitted outerwear manufacturers. The exposition deserves the support of the knitters themselves, and of the allied trades.

Plans Developing for Outerwear Show

The end of the year brought a steady increase in the number of firms planning to exhibit at the Knitwear Industrial Exposition, to be held Feb. 13 to 17 at the Grand Central Palace, New York, under auspices of the National Knitted Outerwear Association. A. B. Coffman, exposition manager, announced just before the holidays that 4,500 sq.ft. of space had been sold. The exhibitors include numerous leaders in the various textile equipment and related groups.

One knitting machine manufacturer plans to show four machines in operation, knitting novelty fabrics, it was stated. The equipment on display promises to cover the whole range of newest textile machinery. Yarn manufacturers, dyers and jobbers have arranged exhibits of latest colors, styles and finishes in all fibers, and there will be an extensive display of button hole machines, buttons and similar outerwear industry supplies.

Among the firms which have reserved space to date for the show are:

H. Brinton Co.; Reece Button Hole Machinery Co.; Yarn Department, American Woolen Co.; Rose Mills, Inc.; Thos. Wolstenholme Sons & Co., Inc.; Masurel Worsted Mills, Inc.; Clifton Yarn Co.; Singer Sewing Machine Co.; Robaczynski Machine Corp.; Mayfair Yarncraft; Queen's Machinery Corp.; Schumer & Friedman; Jacquard Knitting Machine Co. Inc.; Jules Desurmont Worsted Co.; Davison Publishing Co.; E. W. S. Jasper; Howes Publishing Co.; *Melliand Textile Monthly;* Harry Schwartz; *Knitted Outerwear Age;* T. J. Porter & Sons; Crawford Mfg. Co.; TEXTILE WORLD; Merrow Sales Corp.; N. Lands; Waterman, Currier & Co.; Thomas B. Bradley, representing Statesville Cotton Mills; New Brunswick Needle Co., and Guisman Co., Inc.

Sidney Korzenik, secretary of the Outerwear Association stated that plans were advancing for the fashion show which will be held during the week of the industrial exhibition. Numerous special features are projected, including a historic pageant showing old-time bathing-suit styles.

•

Jantzen Experimenting on Dress Fabrics Abroad

Important experimental work looking to the development of new knitted fabrics has been started at the London (Eng.) plant of the Jantzen Knitting Mills, according to a statement made to TEXTILE WORLD by the officers of the company at Portland, Ore.

To clarify reports from England that Jantzen intended to enter the piece goods field, the parent company at Portland telegraphed as follows:

"Jantzen Knitting Mills, Ltd. have installed two machines for experimental effort to evolve unique dress fabrics. This activity is only one manifestation of the experimental research constantly conducted by the company and implies no change in our policy in domestic production."

•

Protection Against Sales Tax

Numerous hosiery-underwear manufacturers, to protect themselves against possible sales tax legislation at the present session of Congress are stamping their order forms with a definite statement that any such sales tax will be added to prices specified on orders. This practice is announced in a recent issue of the News-Letter of the National Association of Hosiery and Underwear Manufacturers, which publication recommends that other manufacturers take similar action.

•

Interest in Low-Luster Underwear Grows

Recent improvements in dull-luster rayon yarns has stimulated knitter interest in the production and distribution possibilities for dull-luster knitted underwear. It is believed this will represent a significant market during early spring because of the growing trend toward dull surfaces in dress and other materials. Fashion approval of dull-luster effects has given this type of merchandise a quality stamp which underwear manufacturers believe will help them both in getting volume and in holding to profitable prices.

•

Red Cross Operations Would Help Knitters

Operation of heavyweight underwear and sweater mills during the slack months of the first quarter will be greatly helped by the Red Cross purchases of sweaters for distribution to the needy, it was stated Dec. 14, by Roy A. Cheney, secretary of the Associated Knit Underwear Manufacturers of America. Mr. Cheney conferred with Red Cross officials in Washington at that time on the projected purchases of cotton sweaters. The merchandise will be made from Farm Board cotton. Red Cross chapters were advised that limited quantities of sweaters could be had upon requisition; it was estimated that 2,760,000 garments would be available, and bids for finishing the sweaters were being received by the Red Cross officials in late December.

•

Berkshire Plans Outlined

Numerous points with respect to the 1933 policies of the Berkshire Knitting Mills were made known in a letter sent out to the trade just before the holidays by Ferdinand Thun, president of the Reading, Pa. company. It is understood that there will be no fundamental change in organization or distribution methods of the company; however the resignation of John Nash McCullaugh, as general manager, has resulted in a redistribution of executive responsibility by which the junior executives will be directly responsible to Mr. Thun and Henry Janssen.

Mr. Thun's letter made known that the new spring lines would be ready this month, and customers also state that

they have been advised of changes in the plans for the fashion and merchandise clinic. Hereafter this clinic will be divided, and the company's spring line will have separate presentation in the three offices of the firm, New York, Chicago and San Francisco.

•

Knit Goods Census Shows Drop in 1931

A decline of 37.2% in the total value of knit goods produced in this country in 1931, as against 1929, is shown in the statistics released at the end of the year by the Bureau of Census. A preliminary tabulation of data collected in the Census of Manufactures taken in 1932 reveals that knit goods to the value of $553,132,828 were manufactured in 1931 as compared with $881,176,157 reported for 1929. The total for 1931 is made up as follows: Hosiery, $308,399,690; knit underwear, $78,564,594; knit outerwear, $111,322,999; knit cloth, $45,015,774.

The number of establishments declined from 1,888 to 1,675 or a drop of 11.3%; number of wage earners dropped 17.7% from 208,488 in 1929 to 171,524 in 1931; and wages declined 31%, being $145,313,365 in 1931 against $210,714,335 in 1929.

•

For Quality Standards in Hosiery

Considerable agitation for the fixing of quality standards in hosiery to meet the problem of a wide price differential among lines having the same specifications, is being heard among manufacturers. The point cited is that say 7-thread, 42-gage stockings sell at anywhere between $3.85 and $5.25. While obviously there is a decided difference in quality, yet the distributor is unable to discern it since the hosiery, technically speaking, is the same.

•

To Represent Sulloway

R. W. Sulloway, president of Sulloway Hosiery Mills, Franklin, N. H., announced that the firm has discontinued its New York selling offices and will hereafter be represented by James Jamison & Co. The Sulloway company makes wool and wool mixture hosiery.

•

Style a Helpful Factor in Bathing-Suit Outlook

Bathing-suit manufactures entered the new year with only a fair amount of business on their books, but with style trends so new and striking that the trade as a whole is very optimistic. The use of Lastex yarn is so dominant in the better-selling lines as to denote a strong consumer preference for this type of suit during the coming summer. One foremost company commented: "We have only a few lines of suits this year which are not part or all elasticized." Early sales indicate that the suits where Lastex is used only in the lower half of the suit beneath the skirt, may be a best-seller. These lines are cheaper than the suits where Lastex is through the entire suit and merchandisers look for exceptional business in this division.

Buyers show little emphasis on color variation, being prone to accept the various shades offered. One significant trend is evident in women's suit orders to date: namely, that distributors prefer the more conservative of the brassiere types. The extremely daring models fared not so well last year, and a slight reaction appears to have set in at this end.

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Knitting Mill News

UTICA KNITTING MILLS, Anniston, Ala., will build a combination warehouse and manufacturing addition at an estimated cost of $60,000.

H. L. BROWN & SONS, INC., New Haven, Conn., has been granted a charter under Connecticut laws to manufacture knitted goods with a capital of $50,000. The incorporators are: Lewis H. and Abraham H. Brown.

VASSAR SWISS UNDERWEAR CO., Chicago, has purchased a four-story plant for $111,000, which it has occupied for several years under lease. The building contains 270,000 sq.ft. of floor space.

NATIONAL SILK HOSIERY MILLS, INC., Indianapolis, Ind., has leased a new one-story building to be constructed on Fulton St., by A. J. Hueber & Co., Indianapolis, to be 90 x 150 ft., and for which general contract recently was let to the Austin Co., Cleveland, Ohio. The new building will cost over $30,000, and will be used by leasing company for a new warehouse and distributing unit.

SECURITY MILLS, INC., Newton, Mass., are considering construction of a new addition, reported to cost over $30,000, with equipment. It is understood that project will mature some time next spring, when architect will be selected to prepare plans.

CERTIFIED SILK HOSIERY CO., Allwood, N. J., is in receivership and Carl Halderman and Alfons Adler, officials of the American Federation of Full-Fashioned Hosiery Workers, have been made receivers. Many of the stockholders are employees.

ARROW SILK HOSIERY CO., Irvington, N. J., is in receivership.

DORIS HOSIERY MILLS, INC., Paterson, N. J., have been organized with a capital of 1,000 shares of stock, no par value, to take over and succeed to the Doris Silk Hosiery Co., with local mill on Gould Ave. The principal incorporators of new company are Ralph S. Croskey, Villa Nova, Pa., and Hiram B. Calkins, Philadelphia, Pa.

CAMPE CORP., New York, and the VAN RAALTE CO. are understood to be negotiating a merger of interests. Officials neither confirmed nor denied.

GRIFFIN HOSIERY MILLS, Burlington, N. C., recently formed by George F. Griffin, Burlington, and associates, with capital of $50,000, have leased building on South Main Street, and will remodel and equip for a new knitting mill, primarily for production of men's hose. Installation of 38 machines is in progress. Goods will be sold in the gray.

MORGANTON (N. C.) FULL-FASHIONED HOSIERY MILL has installed seven of the 12 new knitting machines for which contract was signed last summer. The other five will be set up and operating by April 1.

PILOT FULL-FASHIONED MILLS, INC., Valdese, N. C., are completing a two-story addition, 100 x 106 ft., and have purchased 15 new full-fashioned knitting machines for immediate installation. The company also plans to buy 13 additional machines.

O'BRIEN HOSIERY MILLS CO., Winston-Salem, N. C., has been declared bankrupt and liquidation has been placed in the hands of Archie Elledge, referee.

COLUMBIA KNITTING MILLS, Portland, Ore., are reported to have been sold to Albert I. Simon and Clarence L. Mannheimer.

FAIRPLAY KNITTING MILLS, Philadelphia, men's and boys' sweaters, has enlarged its manufacturing facilities by adding machinery to triple previous output.

BRYAN HOSIERY MILLS, Chattanooga, Tenn., are installing several 45-gage, high-speed Einsiedel-Reiner machines with lace attachments.

WOOLSEY KNITTING MILLS, Shelbyville, Tenn., have purchased enough full-fashioned machinery to double their capacity.

LANDER HOSIERY CO., Guelph, Ont., and Mt. Dennis, will not move its mills from Guelph as reported in business circles.

RICHMOND HOSIERY CO., London, Ont., Canada, which has been operating 24 hours a day, is likely to be enlarged during the coming spring.

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TEXTILE WORLD'S

Processing Digest

AS NEWS, the organization of the silk dyeing industry in the Paterson (N. J.) district has shrunk a bit. Grandiose statements regarding the appointment of Mayor Frank Hague, of Jersey City, as "czar" at a salary of $100,000 (with $25,000 extra thrown into the pot for his attorney-assistant) have been replaced by the anti-climatic announcement of the appointment of Col. Edward T. Moore as administrator of the Dyers' Trading Corp., at a nominal salary, and with an advisory rather than a dictatorial function.

However, the potentialities of the move have not shrunk in proportion. This "czar" business makes good newspaper headlines but doesn't work out in practice. Nor is it possible to visualize a proportionate return, for this particular industry, on a salary investment of $125,000. On the other hand, an intelligent leader with the backing of the individual firms has it within his power to help the silk dyers regain economic sanity. That, as we now understand it, is Col. Moore's function.

He has a fertile field in which to work.

Radio-Active Chemicals For Treating Fire Hose

Special chemicals with radio-active properties are now being used for treating fire hose for the purpose of rendering it mildew-proof and moisture repellent by the Manhattan Rubber Mfg. Division, Passaic, N. J. The treatment consists of the introduction of certain salts of rare earth metals into the fabric of the hose. These salts are radio-active and are said to prevent the formation or growth of mildew colonies and to render the hose fabric rot-proof and moisture repellent for its entire life. An advantage in the use of treated fire hose is that it does away with the need for careful drying after use.

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Clearing House for Textile Designs

Art Interests, the National Artists' Cooperative, 321 West 56th St., New York, J. H. Weaver in charge, is formulating plans for cooperative handling of textile designs. The purpose is not only to bring the free-lance artist in more effective touch with his market but to improve the ethics of the business. Possibility of selling designs on a royalty basis will be looked into and work against piracy undertaken perhaps by a plan for bonding both artist and client. Cooperation of textile printers will be sought in improvement of trade ethics. A chart showing the times when makers of various sorts of textiles are working on particular seasons will be set up so that artists may direct their efforts along current lines. Artists can be supplied with no loss of time for any type of textile design and the organization will make a point of collecting advance style information to serve its clients.

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Finishing Activity

Figures released by the National Association of Finishers of Textile Fabrics show printing at 65% of normal capacity in Nov., 1932, as compared with 61% in Oct. Other percentages are white and dyed combined, 47% for Nov. against 56% for Oct., fast black, 21% for Nov. and 35% for Oct., logwood and sulphur black, 22% for Nov. against 23% for Oct.

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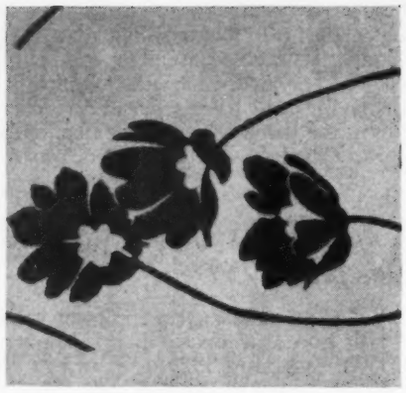
European Cartel Accounts for 84% of World Dye Exports

The far-reaching influence of the European dye cartel is revealed in a report issued by the U. S. Department of Commerce. This report, which embodies the results of a study recently completed by C. C. Concannon, chief of the chemical division, Bureau of Foreign and Domestic Commerce, is of especial significance to the American dye industry in view of the practical control of world markets outside of the United States exercised by the cartel. All major European dye producers with the exception of Russia and Czechoslovakia are members of the entente.



Silk crepe printed with a copper roller engraved by an improved process developed by N. Bechak, 64 W. 48th St., New York. This method is said to be much simpler than the photographic engraving methods in general use, thus saving approximately 45% time and labor, the design being transferred directly from a photographic plate to a sensitized copper roll without use of carbon tisue or other media.

The seven countries included in the dye pact in 1931 accounted for 84% of the total world exports of 160.3 million lb., while their aggregate output is estimated to total about 250 millon lb. Germany accounted for approximately 60% of world exports, as compared with 13% for the United States, 11% for Switzerland, 8% for Great Britain, 4% for France, and 3% for Japan.

In concluding his survey Mr. Concannon points to the strengthened position in foreign markets of the respective members of the dye cartel as a result of trade-allocation agreements, and it is evident that this situation has tended to react to the disadvantage of the American dye export trade.

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Igepon T in Powder Form

Igepon T, available hitherto only in paste form, has now been placed on the market in powder form by General Dyestuff Corp. Unlike the paste, Igepon T powder is not subject to change in concentration through loss of water; at the same time it is more easily weighed out, and is more readily soluble.

It is almost completely dissolved when sprinkled into hot water. For bulk work stock solutions of 10 to 15% strength are recommended. Like soap, stock liquors of Igepon T powder tend to gelatinize when cold, but complete solution is restored by warming. The powder is the same as the paste in effective strength and general properties. The principal properties of Igepon T powder as summarized by the manufacturer are as follows: It is a

powerful detergent; is stable to hard water, acids, and alkalis under all conditions met with in textile processing; is stable in the presence of salts of most heavy metals; is unaffected by bleaching powder, sodium hypochlorite, or hydrogen paroxide solutions; is both a preventive agent against lime-soap formation and a powerful solvent for lime-soap deposits; is of great assistance in the dyeing of all fibers; is a good wetting-out agent and lathers strongly.

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New Dyestuffs

E. I. DuPont de Nemours & Co., Inc., announces the following new product: Pontamine Fast Orange 7R, a fast-to-light, direct color slightly redder in shade than Pontamine Fast Orange ER. It dyes cotton and leaves wool white, making it a useful color for the dyer of union materials. When speck dyed in full shades, acetate effect threads are stained a trace and silk effects are left white. Pontamine Fast Orange 7R is very soluble and level dyeing.

General Dyestuff Corp., announces the following new products: Naphtol AS-GR a new Naphtol which yields bluish green shades in combination with Fast Blue BB Salt and Variamine Blue Salt B. Green dyeings obtained with Naphtol AS-GR and the above-mentioned Fast Blue Salts have excellent fastness to washing and good fastness to chlorine and light. They can be discharged to a white with Rongalite C.

Rapidogen Corinth IB and Rapidogen Green B, two new members of the range of stable Naphtol print colors. Rapidogen Corinth IB has an all-round excellent fastness. Rapidogen Green B represents the first green of the Naphtol range and produces a full bottle-green shade of excellent fastness to washing and chlorine, but only fairly good fastness to light.

Variamine Blue Salt RT, a product which in dyeing and printing characteristics resembles Variamine Blue Salt B, but gives a fuller and more reddish shade.

Alizarine Irisol RL, a product equal in shade and strength to the older Alizarine Irisol R, but of superior fastness to light.

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New Equipment at Alabama Polytechnical Institute

Important additions have been made to the equipment of Alabama Polytechnic Institute school of textile engineering including laboratory size units for cloth dyeing, bleaching, and processing, consisting of a dye jig, squeeze rolls, padder, and scouring out boxes.

The laboratory printing machine has been refitted so that, with the addition of cloth dyeing units, there is a complete layout of laboratory-size dyeing equipment for printing, dyeing of cloth, dyeing of yarns and raw stock.

PROCESSING IN THIS ISSUE

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Sulphonated Oil Analysis

A new titration method for the determination of sulphuric anhydride in sulphonated oils is described by Ralph Hart, of Hart Products Co., in the Oct. 15 issue of the analytical edition of *Industrial & Engineering Chemistry*. This method, which is more rapid than the old acid-boiling titration, is based on the absorption of alkali when the oil is ashed. The procedure is as follows:

Fixed alkalinity—10 g. of the oil is dissolved in 50 c.c. of water in a 250-c.c. Erlenmeyer flask, 50 c.c. of 25% neutral salt solution added, and the mixture titrated to an approximate end point in the presence of 5 drops of methyl orange. The contents are transferred to a separatory funnel, the flask rinsed with 3- to 15-c.c. portions of ether, which are added to the separatory funnel, and the mixture made distinctly acid with standardized solution. After shaking and separating, the lower layer is drawn off into a 250-c.c. beaker. The ether layer is washed with 15-c.c. portions of the salt solution until the wash water is neutral to methyl orange, first rinsing the flask with them. The combined water layers are warmed to expel ether, two drops of methyl orange are added, and the titration completed, approaching the end point with acid. The result is calculated to milligrams of potassium hydroxide per gram of sample and denoted by A_F.

In the presence of ammonia, the fixed alkalinity is determined in the following manner: 5 grams of the oil is dissolved in 100 c.c. of water in a 400-c.c. beaker, 25 c.c. of 0.5 N sodium hydroxide is added, and the solution boiled until wet litmus paper no longer indicates ammonia. The rest of the procedure is according to the above.

Fixed alkalinity (A_F), mg. KOH per gram =

$$\frac{\text{total acid} - \text{total alkali}}{\text{sample}}$$

Decrease in alkalinity after ashing—5 grams of the oil in a 30-c.c. platinum or porcelain evaporating dish is mixed with an equal quantity of 1N sodium hydroxide, using a small glass rod for stirring. The solution is evaporated to dryness either in an oven or over a free flame, the residue heated until it catches fire, allowed to burn gently, and the ash ignited for about 10 min., or until the carbon is nearly consumed. The stirring rod is now removed and wiped with moistened ashless filter paper, the latter is added to the oil, and the stirring rod is put in the beaker in which the titration is to be made. The residue is again heated until the filter paper is ashed, and then oxidized with 3 to 5 drops of 30% neutral hydrogen peroxide. The ash is now heated to a dull red heat, covering the dish to prevent loss by spattering. If not practically free from carbon, the treatment with peroxide is repeated. After cooling, the dish is covered with water in a 250-c.c. beaker and brought to a boil. It is now titrated in the presence of methyl orange with 0.5N sulfuric acid, then about 0.5 c.c. excess added, and boiled about 5 min. to expel carbon dioxide. 0.5N caustic is now added until slightly but distinctly alkaline, the dish and small stirring rod removed, and the titration finished as given under *Fixed alkalinity*. The combined sulphate is given by the following formula, where Al represents total milligrams of alkali and Ac the amount of acid added or used during the titration:

Combined SO_3, % =

$$\left(\frac{Al - Ac}{\text{sample}} + A_F\right)\frac{8}{56.1}$$

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Processing Plant News

French River Finishing Co. has started operations in a part of the plant formerly occupied by the Guerin Mills at Mechanicsville, Conn. The Uncas Finishing Co., present owner of the plant, occupies the other part.

Wilson Finishing Co., Burlington, N. C., will be provided with a building next spring if plans now formulated are carried out, according to information from Burlington. Tentative plans call for a two-story plant 108 x 300 ft.

Boger & Crawford, mercerizers, are installing an additional mercerizing machine at the local plant, which will increase its present capacity for processed yarns by more than one-third shortly after the first of the year.

Sunbury (Pa.) Converting Works were damaged by fire Dec. 8. A considerable quantity of goods was also destroyed. Total loss is estimated at $10,000.

Theis Dyeing & Processing Co., East Greenwich, R. I., has had Albert Jaeger appointed as permanent receiver.

Textile World Analyst

MANUFACTURING MARGINS

STEADIER AT YEAR-END

Year's Activity Surprisingly High—On the basis of still incomplete statistics, it appears that the total textile activity for the year 1932, based on raw material consumption, was approximately 11% below 1931 and 19% below the eight-year average 1924-1931 which, with a certain amount of license, may be regarded as a "normal" year for the present stage of the industry's progress. This rate in 1932 was surprisingly high in view of the depths of inactivity into which the industry sank in the spring and early summer.

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THE textile industry found moderate cause for self-congratulation as the year closed. Unexpectedly heavy demand, starting in August, had made possible a total rate of operation for the year which compared very favorably with that of 1931—being only about 11% less. Increasing evidence had developed to indicate that the stock situation in most branches of the industry was healthy, showing that production schedules had not run wild. Profit possibilities, as reflected by manufacturing margins, had steadied during December.

The last item is of course the most important. Margins had been tumbling steadily since the peak in September—and the decline had been most precipate in November. Fortunately, this was checked last month and the year ended with margins pretty well pegged even though not much above the lows in early summer.

In carded cotton fabrics, for example, the average for December was 10.6c., as compared with 10.7c. in November and 12.6c. in October. Recovery was noted in the last two weeks of last month, when the margin was steady at 11c. (See Table I.)

In carded yarns, the average for the month showed a slightly sharper decline than was true in the case of carded cotton fabrics, but here too the last half of the month was marked by steadiness. The average for December was 10.9c., against 11.3c. in November and 12.2c. in October. (See Table II.)

In attempting to size up 1933 prospects, it is necessary to understand what happened to change the textile picture in the latter part of 1932. Probably the most important contributing cause was the fact that a reservoir of unfilled demand for urgent replacement purposes had been built up—and such demand cannot be deferred indefinitely. As has been pointed out in these columns before, the first sign of the move out of the bottom of depressions is noted in such "consumer" goods as textiles. This sort of trend developed in August.

Another cause of the textile improvement was the advance in the prices of certain commodities. Cotton, for example, responded to the bullish influence of the first Government crop estimate. Later, the textile buying itself tended to support the raw material markets and to prevent serious collapse, even when less bullish indications became apparent.

As a third and underlying cause, the more hopeful attitude in business in general—as reflected particularly in security prices—helped to develop and maintain strength in textile markets.

All of these factors are still with us. By no means has all the urgent demand been filled. Most textile raw materials have an under tone of strength. Security markets have held a good part of their gains, despite dire predictions of collapse in the latter part of November. More and more, the general public is coming to regard this as the beginning of the slow pull out of the depths.

Consequently textile manufacturers look forward to a fair maintenance of demand during the early part of the year at least.

However, it is becoming increasingly evident that a total volume only a little in excess of 1932 can be expected for 1933. Consequently, if a profit is to be made at all this year, it will have to be made on a volume somewhat approximating last year's. This immediately high lights the manufacturing margins factor and explains why the only hope for 1933 rests in a broadening of those margins—and a maintenance of such a spread throughout the year.

TABLE I. CARDED FABRIC MARGINS

Date	Margin in cents
July, 1931	15.3
October, 1931	13.3
January, 1932	12.1
June, 1932	9.5
July, 1932	9.1
August, 1932	11.1
September, 1932	13.0
October, 1932	12.6
November, 1932	10.7
December, 1932	10.6
Wk. end. Dec. 7	10.2
Wk. end. Dec. 14	10.1
Wk. end. Dec. 21	11.0
Wk. end. Dec. 28	11.0

TABLE II. CARDED YARN MARGINS

Date	Margin in cents
July, 1931	12.6
October, 1931	12.7
January, 1932	10.9
June, 1932	9.9
July, 1932	9.6
August, 1932	9.7
September, 1932	12.8
October, 1932	12.3
November, 1932	11.3
December, 1932	10.9
Wk. end. Dec. 7	11.2
Wk. end. Dec. 14	10.7
Wk. end. Dec. 21	10.9
Wk. end. Dec. 28	10.9

Textile World's Index Numbers

Date	Cotton Index Numbers: Cotton	Cotton Yarns	Gray	Colored	Wool Index Numbers: Wool	Tops	Yarns	Cloth	Raw Silk Index: Date	Raw Silk
July 31, 1914	100	100	100	100	100	100	100	100	July 31, 1914	100
1925	193	193	193	177	221	226	222	234	1924-25 season	140
1926	146	159	161	152	189	195	199	210	1925-26	172
1927	130	146	153	147	179	184	186	195	1926-27	141
1928	160	162	163	166	218	201	198	197	1927-28	126
1929	158	163	156	168	182	184	193	198	1928-29	126
1930	114	131	127	147	131	143	164	190	1929-30	104
1931	75	97	99	121	102	114	134	165	1930-31	62
1932										
Jan.	53	78	74	102	94	104	127	147	Jan., 1932	41
April	49	75	73	98	83	98	121	133	May, 1932	28
July	47	68	62	96	59	72	101	116	July, 1932	25
Oct.	52	83	78	107	82	97	115	130	Oct., 1932	37
Nov.	49	76	69	107	79	92	111	125	Nov., 1932	33
Dec.	48	74	69	103	77	87	108	125	Dec., 1932	33